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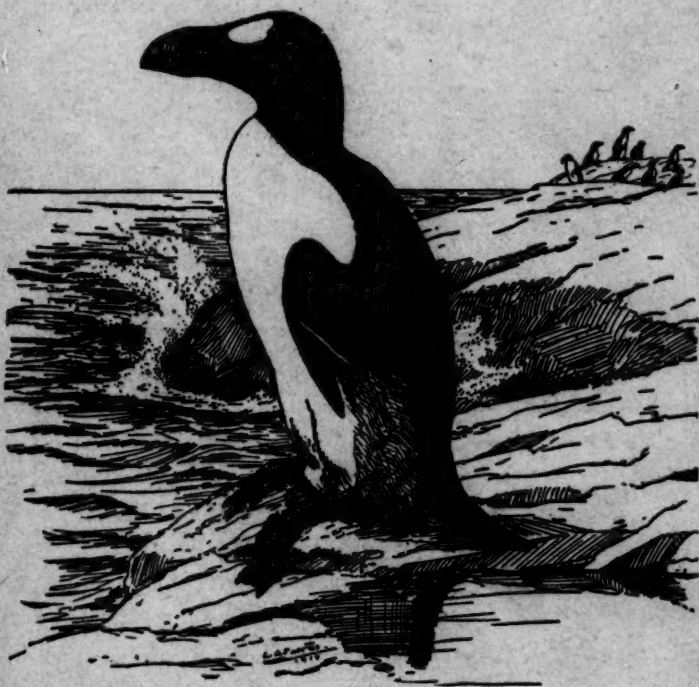
The Auk

A Quarterly Journal of Ornithology

Vol. XXXV

JULY, 1918

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CONTENTS

	PAGE
GEORGIA'S RARITIES FURTHER DISCOVERED IN A SECOND AMERICAN PORTFOLIO OF JOHN ABBOT'S BIRD PLATES. By Samuel N. Rhoads. (Plate IV.)	271
NOTES ON THE ANATOMY OF THE CUBAN TROGON. By Hubert Lyman Clark	286
FURTHER NOTES AND OBSERVATIONS ON THE BIRDS OF HATLEY, STANSTEAD COUNTY, QUEBEC, 1916-1917. By H. Mousley	289
HOME LIFE OF THE VESPER SPARROW AND THE HERMIT THRUSH. By E. M. and W. A. Perry	310
THE DISTRIBUTION OF NUTTALL'S SPARROW IN CALIFORNIA. By Carl L. Hubbs	321
THE LIMICOLA OF THE STATE OF WASHINGTON. By J. H. Bowles	326
THE BIRDS OF DESECHEO ISLAND, PORTO RICO. By Alexander Wetmore	333
SOME RECENT CONNECTICUT BIRD NOTES. By Arelas A. Saunders	340
NOTES ON THE NESTING BIRDS OF WAMPETON, NORTH DAKOTA. By J. K. Jensen	344
<p>GENERAL NOTES.—<i>Larus nelsoni</i> in Juvenal Plumage, from the Hawaiian Islands, 349; <i>Anas rubripes rubripes</i> in North Dakota, 350; <i>Melospiza melodia phœa</i> in Southern California, 350; <i>Numenius americanus americanus</i> not a Breeding Bird of Michigan, 350; The Rough-legged Hawk (<i>Archibuteo lagopus sancti-johannis</i>) at Washington, D. C., 351; Occurrence of Goshawks (<i>Astur a. alricapillus</i>) and Saw-whet Owl (<i>Cryptoglaux acadica</i>) in the Vicinity of Washington, D. C., 351; Large Flight of Great-Horned Owls and Goshawks at Hadlyme, Connecticut, 351; <i>Megascerylo</i> vs. <i>Streptocerylo</i>, 352; The Sapsucker Wintering in Central Maine, 353; A Crested Flycatcher injured by Swallowing a Grasshopper, 354; An Attempt to Breed the Pine Grosbeak in Captivity, 355; The Systematic Position of <i>Calyptophilus</i>, 356; <i>Junco aikeni</i> in New Mexico, 357; Notes on Some Bird Fossils from Florida, 357; A Note Concerning Bird Mortality 358; Birds and Mulberries, 359; An American Edition of Audubon's 'Ornithological Biography,' 360.</p>	
<p>RECENT LITERATURE.—Loomis on the Tubinares, 362; Murphy on Atlantic Oceanites, 364; Cory's 'Catalogue of Birds of the Americas,' 365; McAtee's 'Sketch of the Natural History of the District of Columbia,' 366; Townsend's 'In Audubon's Labrador,' 367; Pearson's 'Tales from Birdland,' 367; Mathew's 'Birds of Australia,' 368; Lincoln's 'The Woodpeckers of Colorado,' 368; 'Cassinia' for 1917, 369; Bangs and Penard on a Collection of Surinam Birds, 369; Riley on a New Bullfinch from China, 370; McGregor on New or Noteworthy Philippine Birds, 370; Gabrielson on the Birds of Clay and O'Brien Counties, Iowa, 370; Recent Papers on Bird Preservation, 370; Bird Enemies of Brine Shrimps and Alkali Flies, 372; Bird Enemies of the Varying Hare, 372; Curious Hording Habits of Birds, 372; Bird Enemies of Tree Hoppers (Membracidae), 373; The Ornithological Journals, 374; Ornithological Articles in Other Journals, 378; Publications Received, 379.</p>	
<p>NOTES AND NEWS.—Obituary: Otto Finsch, 381; Henry Reed Taylor, 382; The Principal Ornithological Societies, 382; Ornithological Endowment, 384; Members of the A. O. U., 384; Called to the Colors, 385; The thirty-sixth Meeting of the A. O. U., 386.</p>	

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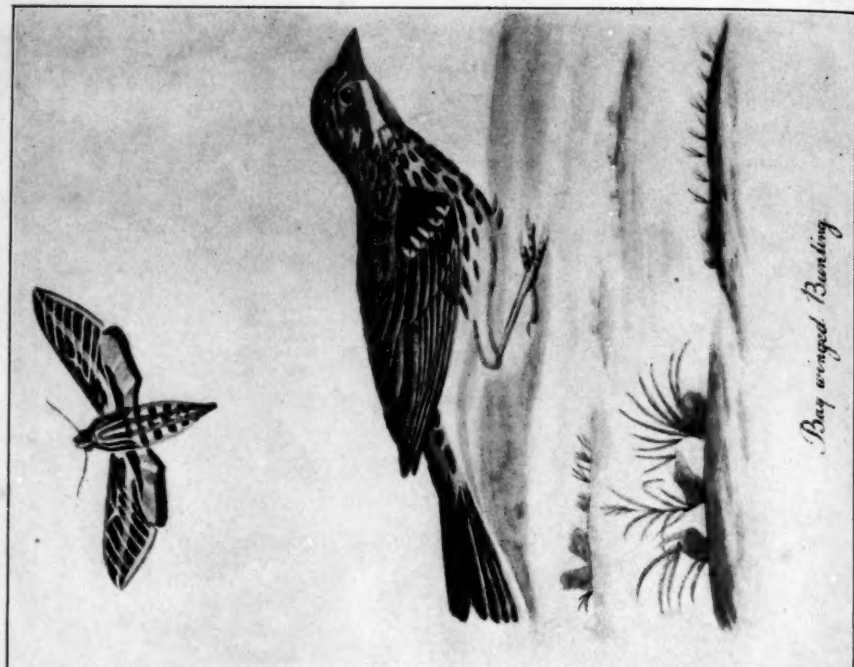
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Virginia Goldfinch



Bay-winged Bunting

THE AUK:

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No. 3.

GEORGIA'S RARITIES FURTHER DISCOVERED IN A SECOND AMERICAN PORTFOLIO OF JOHN ABBOT'S BIRD PLATES.

BY SAMUEL N. RHOADS.

Plate IV.

If the expectant reader of this article will examine volume XIII of 'The Auk' for the year 1896 he will find, on page 204, the following title of a paper by Walter Faxon, 'John Abbot's Drawings of the Birds of Georgia'. I have worded my own subject to "carry on," as it were, an amplification of what was there published more than twenty years ago.

In brief, Dr. Faxon describes, with considerable minuteness, "a set of 181 water color sketches of birds," owned by the Boston Society of Natural History and labeled "Drawings of the Birds of Georgia by John Abbot." How the Society secured these was not known. They appear to have been originally classified, as a collection, by Abbot himself, and consecutively numbered from 1 to 200, Dr. Faxon inferring that nineteen of the original series had been lost. Abbot's handwriting, in pencil, consisting of names, largely in accord with the nomenclature of Wilson's 'Ornithology,' with memoranda of dimensions, migration data and color notes, appears on the plates, only one of which is inscribed (in ink) with Abbot's signature and the date, "1810."

Unfortunately there is no mention of *locality* data, and the proof that they depicted specimens of the birds of Georgia only, and not also of the closely adjoining regions of South Carolina, appears to rest in that case, quite as much as in the one about to be narrated, largely on circumstantial evidence. Undoubtedly the great majority are Georgia records but whether all could be accepted as such, without question, in a present-day check-list, is doubtful.

Dr. Faxon goes on to give some account of this really remarkable naturalist, as the collector, artist and author of the earliest illustrated monograph of American insects, that splendid folio work of two volumes in colors, depicting the 'Rarer Lepidopterous Insects of Georgia.' Abbot was fortunate in having, as his editor and patron, Sir John Edward Smith in this publication, which appeared in London in 1797.

If he had been equally fortunate in securing an ornithological patron he would have forestalled by from fifteen to forty-five years many of the discoveries made in United States ornithology during the notable period covering the activities of Wilson, Audubon and Bonaparte.

So much by way of introduction; now for my story.

In December, 1916, I stopped at Savannah for two or three days, en-route for Cuba. During my stay I had the long anticipated satisfaction of visiting "Wormsloe," the country seat and plantation of the late Wymberley J. De Renne, situated on the Isle of Hope, one of the coast islands about three miles from Savannah.

Here is located, in a fine old colonial mansion the greatest and best single collection of books, manuscripts and other literature relating to the State of Georgia, and fittingly named by Lieut. Wymberley Wormsloe De Renne, the son and literary successor of Mr. De Renne, "*The Wymberley Jones De Renne Georgia Library.*" I was kindly escorted thither by Mr. L. L. Mackall of Savannah, the enthusiastic and efficient librarian of this fine collection, who, knowing my special taste for nature studies, soon produced some very precious items in that line. Among these was a folio volume of exquisitely drawn and colored original delineations of the reptiles and batrachia of Georgia painted by and for members of the noted Le Conte family.

Some of these were the originals of published illustrations of articles in scientific journals of an early day and in Holbrook's *Herpetology*. A companion volume to this one, both in size and modern binding, contained the water-color sketches of birds, forming the subject of this article. Mr. Mackall was anxious to have the tentative identification of these, as being of John Abbot's authorship, verified, but it was not until January of the present year that they were sent to me for that purpose. In this examination I have naturally made the archives of the Academy of Natural Sciences of Philadelphia and the good offices of the Editor of 'The Auk' my chief assistants.

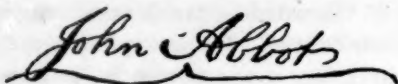
The folio volume containing these illustrations was bound for Mr. De Renne in three quarter red morocco, say about twenty years ago, possibly longer. The date and source of purchase unfortunately cannot now be ascertained.¹ On the back of the binding is printed in gold: — "*Birds of Georgia*"; and at bottom: — "1797." There is no other attempt, either inside or outside of the volume, to record its authorship, origin or subsequent history.

A set of thirteen manuscript sheets, written in ink and of very recent date describes each plate in detail by number and name, with remarks as to pose, etc. These, together with a library reference filing card, stating that "the artist was probably John Abbot," were laid within the volume.

There are one hundred and twenty-two hand painted sheets of uniform size, make and quality of heavy, hand made, plate paper, some slightly discolored by age and moisture, one torn into and mended and the last one of the series lacking a considerable part of the upper margin, not affecting the illustration but removing the legend probably written on its back as in all other sheets in the set. There are no watermarks in the paper, as in the Faxon set, to indicate age, but it is similar in make-up to old English plate paper of the last two decades of the eighteenth century, and this, together with the nomenclature used by the artist, indicate that these sketches were made several years prior to those described by Dr. Faxon. The sheets measure nine and one-half by thirteen inches and evidently have not been trimmed since they were painted upon.

¹ As this paper goes through the press I learn that the plates were purchased for \$100. from Geo. D. Smith, a well known dealer of New York City, on April 23, 1906.

The accompanying half-tone illustrations (Plate IV) from two of the best of Abbot's sketches in this series, together with a reproduction of the artist's signature at end of his letter to George Ord,

A handwritten signature in cursive script that reads "John Abbot". The signature is written in dark ink and is underlined with a long, sweeping horizontal stroke.

will give a fair idea of his work and his autograph. Owing to the English names of the birds, given by Abbot below each, being written in red ink it was necessary to trace them over carefully in black ink on the prints from which these half-tones were prepared. While this does not materially alter the character of the handwriting it does not do justice to the neatness and smooth finish of the originals. With some exceptions, to be noted in the check-list of figured birds at the end of this paper, Abbot has aimed to write along the upper margin (or top) of the reverse side of each a repetition of the English name, and below this the binomial, followed by "length" in "inches." This also is written with red ink, which, curiously enough, has the same sort of peculiar sanguine, pokeberry tint which adorns alike the Cardinal, Scarlet Tanager, Purple Finch, and Red-headed Woodpecker!

It should be stated that the numerical sequence of plates in this portfolio and their consecutive numbering in rather crude lead pencilling is evidently modern and with no regard to system, zoological or artistic, as the quoted list will show.

Certainly Abbot had no hand in this feature of the collection. That he was responsible for all the red ink chirography on these sheets is however readily proved by a comparison of it with the handwriting of his fine folio autograph letter to Ord in the archives of the Academy of Natural Sciences which was published in full in 'The Auk' (1906, p. 365) by Dr. Witmer Stone.

In a comparative analysis of the two bird portfolios it will be seen that, of the ninety-two species identified in the De Renne series, there are twenty-seven species not present in the set described by Faxon. There are also two unidentified hawks, Plates 27 and 59, one of them possibly representing an additional species. These two, for convenience of reference, are designated

by an asterisk (*) in the list given. The two Abbot portfolios therefore represent 174 species, presumably all of birds procured in Georgia, and, for a period of approximately 110 years ago, a remarkable showing in the annals of early American Ornithology, produced as it was by an Englishman who was primarily a hard working field entomologist, dependent thereon for his living and at the same time remarkable for his accurate and beautiful sketches of insects and the trees and flowering plants upon which they feed. As intimated by Faxon, the number of bird species is also noteworthy because of the small number of marine or tide water forms depicted, due, no doubt, to the distance of sixty miles or more separating Abbot's home in Screven County from the seacoast.

Of gulls and terns, only two species each are given. Of the Limicoline Shore-birds, so abundantly represented by species frequenting the coast line of the Southeastern States, all of Abbot's plates show but seven species of those peculiar to the coast and some of these are known to straggle inland along such a waterway as the Savannah River, near which our artist's home was located. Comparing again with Faxon's list, we note that the De Renne series numbers twenty-one Warbler species to sixteen: also in Flycatchers (*Tyrannidæ*) the ratio is four to one.

The De Renne series has thirteen plates of Hawks showing variations of probably eight species as against four species in the other series. The disparity in number of water-bird plates in the two folios is markedly in favor of the Boston Society's collection, being fifty-two to eleven. If our conjecture as to the Boston series being of later production is correct it is in accord with the natural trend of a collector's researches to go farther afield, and may be found to tally with Abbot's residence in or near Savannah for a period prior to his return to England.

It is unfortunate that Dr. Faxon did not publish at least a representative series of quotations from the pencil annotations which Abbot is stated to have made on his drawings, especially of the names or localities there given. One of the most interesting features of the collection here described is Abbot's nomenclature, both vulgar and technical, which I have taken pains to reproduce, without any alteration, and within quotation marks. It is desirable that some one, having access to the Boston Society's portfolio,

make a report on the noteworthy portions of those pencil notes which are said to lie in obscurity beneath the cryptic camouflage of Dr. T. M. Brewer. By so doing he may bring to light a few more secrets which time and patient research are adding to the real biography of the hermit naturalist of Georgia.

Some of Abbot's common names are recognizable as those of Catesby, Edwards and Pennant, his English models; a few are apparently quite local, as "Flax Bunting" for the American Goldfinch, "Cat Flycatcher" for the familiar Cat Bird, "Blue Warbler," not inaptly given to the Blue Bird, "Black Bunting" for Snowbird, "Pigeon Hawk" for Mississippi Kite, "Little Sparrow" for the "Chippy," etc. Some of the names are evidently Abbot's own for species he thought undescribed, "very rare," or that he could not identify: as "Barred-tail Sandpiper" for the Solitary species, "Black-rumped Sandpiper" for the Pectoral, "Yellow Warbler" for the Blue-winged Yellow, "Yellow-poll Warbler" for Chestnut-sided, "Georgia Wren" for Long-billed Marsh Wren and "Magnolia Warbler" for the Cape May species. His name of "Red-breasted Thrush" for our so-called "Robin" is worthy of universal adoption. His classing all the American "Starling" Blackbirds as "Oriole" strikes one nowadays rather strangely, though it has a more real and generic meaning than the vulgar name now applied to that group. It also seems a bit queer to think of Vireos as "Flycatchers," though Wilson so termed them while Audubon used the name as an alternative and more than half their food is flies or flying. We are not a little indignant, too, to find our familiar and much loved Song Sparrow damned by such faint praise as to be called the "Spotted breasted Sparrow"! No doubt a careful analysis of these English names would reveal much as to the artist's real sources of literary knowledge, both of books and persons. That he was in steady correspondence with English men of science is matter of record and no doubt some of his contemporaries abroad received from him the types and drawings of American birds, now recognized, which were there first described. His personal association with Alexander Wilson in Georgia is recorded by Ord, but to what extent the 'American Ornithology' is indebted to the discoveries of the Georgia naturalist may now be left to the research of others.

Faxon has referred to the work of Abbot from both artistic and scientific aspects and I fully agree with his conclusions. It may seem invidious to compare his bird sketches with those of Wilson, whose perfected illustrations have so long been over-praised by many, who, appreciating his literary and field work and his desperate struggles in the publication of his 'Ornithology,' have been unduly biased in his favor as an artist. Anyone examining the uncolored pencil and pen drawings which formed the great bulk of the originals which Wilson handed to his engraver, Alexander Lawson, will be convinced that Abbot's colored plates are in a different class. Several of Wilson's original sketches, or rough drafts, on scraps of paper, are mounted in a portfolio presented to the Academy of Natural Sciences of Philadelphia many years ago by the descendants of Lawson. In this, Lawson has mounted the Wilson drafts opposite a highly finished proof impression of the engraved plate in two states, the one, plain, on India paper, the other, carefully colored, on heavy plate paper. An examination of these will convince the most skeptical how much of the credit given the authors of illustrated works is rightly due to their engravers. Even Audubon was no exception to this. Abbot's great ability with the brush, as an off-hand colorist and at the same time a faithful recorder of seasonal and racial plumages in birds, is on a par with his work on moths and butterflies and their larvæ. Considering the difficulty of depicting, in natural pose and proportion, the mounted bird specimens which evidently were his models, as compared with copying from flat mounts of the *Lepidoptera*, it is surprising how well his portfolios were executed in one of the "Lost Towns of Georgia" at a period when the crude illustrations of ornithological literature had advanced little beyond those of the age of Linneus. The remarkable similarity of make-up and style between Abbot's bird plates and those of George Edwards in his fine old color plate quartos of the 'Natural History of Birds,' begun in 1743, convinces me that the inspiration came from that publication more than any other, especially in view of the large number of American species which were there figured for the first time. We see in both the stereotyped accessories of the taxidermist,—a miniature tree, often leafless, decked with bits of moss and lichens, a conventional stand, or groundwork of grass patches,

moss, pebbles, frozen flowers, Dutch tulips, etc. On the margins, — sky, if you think so, — sports a curious fly or beetle, a gorgeous moth or even a bug or spider, in brilliant contrast to the sombre sparrow or blackbird that forms the centerpiece.

On the other hand, to compare Abbot's work to that of Audubon would be as far from the mark as to perpetuate the fallacy of making such comparisons between Audubon and Wilson. Of the three, Audubon alone was the real bird artist, revealing life, action, color, shade and landscape often in wondrous combination. As such, he was the greatest, and for many years, the only pioneer in artistic and natural illustration of faunal ornithology.

None of Abbot's birds in the De Renne portfolio show action, other than perfunctory woodpecking by a woodpecker, the eyeing of a green worm by the "Toupet Tit," the half opened wings of the "Red-winged Oriole" to display his epaulets, the inspection of a curious red fish by the Kingfisher, whose quizzical look is quite amusing, but not more so than that of the "Tyrant Shrike" in the garb of a Kingbird leaning over to inspect a green grasshopper seated upon the ground! Abbot had a curious and unaccountable trick of placing the pupils of his bird's eyes in a forward position. On this account, most of them may be said to be squinting or cross-eyed when there is no occasion for it. Not one in five has the pupil centered as is normally the case in nature. The plate of two Common Crossbills has the eyes centered but in other respects as to markings, pose, etc., it is the only one which does not seem to belong to the collection. Such a rare bird is this, in the lowlands of Georgia, and so crude is the sketch, it seems likely he copied the drawing from some other source than the birds themselves. The fine mottling and vermiculation of the plumages of the Chick-willows and the Night Hawk show not only great fidelity to nature but also most skilful handling of brush and colors. Perhaps the most artistic picture is that of a pair of Gnatcatchers, but those of the Goldfinches, the Redstarts and the Kinglets are nearly as good. His "Bay winged Bunting" and "Virginian Goatsucker" are here reproduced as two of the best examples of Abbot's art.

In conclusion, let me emphasize the conviction, that, not only in England, to which country Abbot returned and there ended his days at an advanced age, but also in the United States, there rest

concealed many manuscripts and other archives which would not only satisfy our curiosity about the man but would reveal historic and scientific data. His portrait, in colors, was published in Scudder's work on American insects, but in the same volume Scudder says that no specimen of his autograph name was available. The reproduction of an example of it with this paper and the information in the fine letter from which it is taken should be an encouragement to our English brethren to "start something" in this line of enquiry. Here are some queries: — Where was Abbot born and when? When did he return to England and when deceased? Was he married, and a parent? Did he own land in either country and keep house or board in lodgings? Where was he buried, and is there any notice of his death in local newspapers or in genealogies of Abbot families?

If the correspondence and manuscript collections of Sir James Edward Smith are preserved they will almost certainly yield some of these desiderata. This accomplished botanist, author and patron of science was founder and first president of the Linnæan Society of London. As Smith owned the unrivalled autograph collections of Linnæus and of many of his celebrated correspondents, it is probable these treasures yet exist in the archives and are accessible to students.

Let us hear from them by return mail.

List of John Abbot's Water Color plates of the "*Birds of Georgia*," now bound in one folio, one-half red morocco binding, belonging to the "Wymberley Jones De Renne Georgia Library," Wormsloe, near Savannah, Georgia.

Copied from the plates and identified February, 1918, by S. N. Rhodes, Haddonfield, N. J. (In the order of binding.)

1. "White eyed Flycatcher. *Muscicapa cantatrix*, length 5 Inches" = *Vireo griseus griseus*, ♂.
2. "Flax Bunting—length 4½ inches." = *Astragalinus tristis tristis*. (♂ and ♀).
3. "Fowl Hawk" = *Accipiter velox*.
4. "Toupet Titmouse. *Parus Bicolor*: length 6¼ inches." = *Bæolophus bicolor*.

5. "Chuck wills widow. Length $12\frac{1}{2}$ inches." = *Antrostomus carolinensis*.
6. "Bay-winged Bunting. *Emberiza Graminea*. length $6\frac{1}{2}$ inches" = *Poæcetes gramineus gramineus*.
7. "Virginian Goatsucker. *Caprimulgus Virginianus*, length 8 inches." = *Chordeiles virginianus virginianus*.
8. "Great Carolina Wren. *Certhia Caroliniana*, length $5\frac{3}{4}$ inches." = *Thryothorus ludovicianus ludovicianus*.
9. "Great Meadow Lark. *Alauda Magna*, length $9\frac{1}{2}$ inches." = *Sturnella magna argutula*, ♂.
10. "Cat Flycatcher *Muscicapa Carolinensis*, length $8\frac{1}{2}$ inches" = *Dumetella carolinensis*.
11. "Pine-creeping Warbler. *Sylvia Pinus*, length $5\frac{1}{2}$ inches." = *Dendroica vigorsi*, ♂ and ♀.
12. "Chestnut-winged Oriole. Length $7\frac{1}{2}$ inches" = *Agelaius phæniceus phæniceus*, ♂.
13. "Barred tail Sandpiper, length $8\frac{1}{2}$ ins." = *Helodromas solitarius solitarius*.
14. "Loggerhead Shrike. *Lanius Carolinensis*, length $8\frac{1}{2}$ Inches." = *Lanius ludovicianus ludovicianus*.
15. "White-throated Finch. *Fringilla Pensilvanica*, length $6\frac{1}{2}$ Inches." = *Zonotrichia albicollis*, ♂.
- * 16. "Brown Thrush. *Turdus fuscus*, length 7 Inches" = *Hylocichla ustulata swainsoni*?
17. "Indigo Bunting. *Emberiza cyanea*, length 5 Inches." = *Passerina cyanea*, ♂.
18. "Golden-legged Sandpiper. Length 12 Ins." = *Totanus melanoleucus*.
19. "Black Bunting. *Emberiza Hyemalis*. length $5\frac{1}{2}$ Inches." = *Junco hyemalis hyemalis*.
20. "Black and White Creeper. *Certhia maculata*, length $5\frac{1}{4}$ Inches." = *Mniotilta varia*, ♂.
21. "Towhe Bunting *Emberiza Erythrophthalma*. length $8\frac{1}{2}$ Inches." = *Pipilo erythrophthalmus erythrophthalmus*, ♂.
22. "Yellow breasted Warbler. *Sylvia Trichas*. length $5\frac{1}{2}$ inches." = *Geothlypis trichas ignota*, ♂.
23. "Black rumped Sandpiper. length 9 inches." = *Pisobia maculata*.

24. "Little Thrush. *Turdus Melodes*. length 7 Inches." = *Hylocichla fuscescens*.
25. "Mottled Oriole. length 10 Inches" = *Euphagus carolinus*, ♂ in winter.
26. "Hairy Woodpecker. *Picus villosus*. length 8½ inches." = *Dryobates villosus auduboni*.
- *27. "Sharp-tailed Hawk. *Falco caudacuta*. length 20 Inches. very rare." Not identifiable. Possibly a *Buteo*.
28. "Yellow bellied Woodpecker. *Picus varius*. length 8 Inches." = *Sphyrapicus varius varius*, ♂ old adult in spring; with remarkable amount of white on upper parts.
29. "Red shouldered Hawk. Female." = *Buteo lineatus alleni*.
30. "Cockaded Woodpecker. *Picus querulus*. length 8½ inches." = *Dryobates borealis*, ♂.
31. "Black cap Hawk. female." = *Accipiter cooperi*.
32. "Brown Lark. Length 6½ inches." = *Anthus rubescens*.
33. "American Teal. *Anas Carolinensis*. length 14 Ins." = *Nettion carolinense*, ♂.
34. "Least Nuthatch. *Sitta Pusilla*. length 4¼ Inches." = *Sitta pusilla*.
35. "Pewit Flycatcher. *Muscicapa Nunciola*. length 7 inches." = *Sayornis phæbe*.
36. "American Crossbill. *Curvirostra Americana*. length 5½ Inches." = *Loxia curvirostra minor*. ♂ and ♀.
37. "Carolina Chatterer. *Ampelis Garrulus*. length 7 Inches." = *Bombycilla cedrorum*.
38. "Marsh Hawk. Length 20 inches." = *Accipiter cooperi*.
39. "Rice Bunting. *Emberiza Oryzivora*. length 6¼ Inches." = *Dolichonyx oryzivorus*, ♂, spring adult.
40. "Red winged Oriole. *Oriolus Phæniceus*. length 8½ Inches." = *Agelaius phæniceus phæniceus*, adult ♂.
41. "Canada Titmouse. *Parus Atricapillus*. length 4½ Inches." = *Penthestes carolinensis carolinensis*, ♂.
42. "Painted Bunting. Nonpareil. *Emberizis Ciris*. length 5½ inches." = *Passerina ciris*, adult ♂ and ♀.
43. "Virginia Rail. *Rallus Virginianus*. length 13 Ins." = *Rallus elegans*.
44. "Hooded Warbler. *Sylvia Mitrata*. length 5½ Inches." = *Wilsonia citrina*, ♂ and ♀.

45. "Ground Pigeon. *Columba passerina*. length 7 Inches." = *Chamepelia passerina terrestris*.
46. "Yellow headed Warbler. Length $4\frac{1}{2}$ Inches. Very rare." = *Dendroica virens*, Juv. ♂, or ♀ in fall plumage?
47. "Red breasted Thrush. *Turdus Migratorius*. length 10 Inches." = *Planesticus migratorius migratorius*.
48. "Red Grosbeak. Female." = *Zamelodia ludoviciana*.
49. "Swamp Sparrow. *Fringilla Palustris*. length $5\frac{1}{2}$ Inches." = *Melospiza georgiana*.
50. "Mimic Thrush *Turdus Polyglottus*. length $9\frac{1}{2}$ Inches." = *Mimus polyglottos polyglottos*.
51. "Yellow poll Warbler. Length $5\frac{1}{4}$ inches. very rare." = *Dendroica pensylvanica*, spring adult ♂.
52. "Common Creeper. *Certhia Familiaris*. length $6\frac{1}{2}$ Inches." = *Certhia familiaris americana*.
53. "Golden crowned Wren. *Motacilla Regulus*. length 4 Inches." = *Regulus satrapa satrapa*.
54. "Fox coloured Sparrow. *Fringilla Rufa*. length 7 Inches." = *Passerella iliaca iliaca*.
55. "Ferruginous Thrush. *Turdus Rufus*. length 11 Inches" = *Toxostoma rufum*.
56. Passenger Pigeon. *Columba Migratoria*. length 16 Inches." = *Ectopistes migratorius*, ♂.
57. Carolina Pigeon. *Columba Carolinensis*. length $12\frac{1}{2}$ Inches." = *Zenaidura macroura carolinensis*, ♂.
58. "Purple Swallow. *Hirundo Purpurea* length $7\frac{3}{4}$ Inches." = *Progne subis subis*, ♂.
- *59. "Slate-coloured Hawk. *Falco Pennsylvanicus*. length $13\frac{1}{2}$ Inches. Female 16. [Inches]." = Apparently a hybrid between *Accipiter cooperi* and *Falco columbarius*! Not *Buteo platypterus*. May be *Accipiter velox*.
60. "Sparrow Hawk. female." *Falco sparverius sparverius*.
61. "Blue Warbler. *Sylvia Sialis*. length 7 Inches." *Sialia sialis sialis*, ♂.
62. "Blue eyed Warbler. *Sylvia Citrinella*. length $4\frac{3}{4}$ Inches." = *Dendroica aestiva aestiva*, ♂.
63. "Great Thrush. *Turdus Magnus*. length $7\frac{1}{2}$ Inches" = *Hylocichla mustelina*.

64. "Yellow rump Warbler. *Sylvia Coronata*. length 6 Inches." = *Dendroica coronata*. Spring ♂ and ♀.

65. "Yellow throated Warbler. *Sylvia Flavicolis*. length 5½ Inches." = *Dendroica dominica dominica*. ♂ Spring.

66. "Belted Kingfisher. *Alcedo Alcyon*. length 12¼ Ins." = *Ceryle alcyon alcyon*; ♀ with fish.

67. "Black-throated Warbler. *Sylvia Canadensis*. length 5½ Inches." = *Dendroica caerulescens cairnsi*. Spring ♂, with black-spotted back.

68. "Black cap Hawk. *Falco Atricapillus*." = *Accipiter cooperi*. (See No. 31.)

69. "Black-headed Nuthatch. *Sitta Carolinensis*. length 5½ Inches." = *Sitta carolinensis carolinensis*.

70. "Pigeon Hawk, or Louisiana Kite. *Falco Columbarius* length 14½ Inches." = *Ictinia mississippiensis*.

71. "Black-billed Cuckoo. *Cuculus Erythrophthalmus*. length 11½ Inches." = *Coccyzus erythrophthalmus*.

72. "Noisy Plover. *Charadrius Voceferus*. length 10 Ins." = *Oxyechus vociferus*.

73. "Spotted breasted Sparrow. *Fringilla Melodia*. length 5 Inches." = *Melospiza melodia melodia*.

74. "Yellow Warbler. Length 5¼ Inches. rare." = *Vermivora pinus*; Spring ♂.

75. "Cardinal Grosbeak. *Loxia Cardinalis*. length 9 inches." = *Cardinalis cardinalis cardinalis* ♂.

76. Chicken Hawk. Length 17 Inches." = *Buteo lineatus alleni* in immature plumage.

77. "Carolina Cuckoo. *Cuculus Americanus*, length 12 Inches." = *Coccyzus americanus americanus*.

78. "Little Hawk. Length 10 inches." = *Buteo platypterus*.

79. "Water Thrush. *Turdus Aquaticus*. length 6 inches." = *Seiurus motacilla*.

80. "Boat-tailed Grackle. *Gracula Barita*. length 13 Inches." = *Quiscalus quiscula aglaeus*, ♂.

81. "Wood Pee wee Flycatcher. *Muscicapa Rapax*. length 6 Inches." = *Myiochanes virens*.

82. "Yellow red poll Warbler. *Sylvia Petechia*. length 5½ Inches." = *Dendroica palmarum hypochrysea*, ♂ and ♀.

83. "Aculeated Swallow. *Hirundo Pelasgia*. length $5\frac{1}{4}$ Inches." = *Chætura pelagica*.

84. "Ruby crowned Wren. *Sylvia Calendula*. length $4\frac{1}{2}$ inches." = *Regulus calendula calendula*, ♂ and ♀.

85. "Golden crowned Thrush. *Turdus Auropapillus*, length 6 Inches." = *Seiurus auropapillus*.

86. "Sharp-tailed Finch. *Fringilla Caudacuta*. length $4\frac{3}{4}$ inches." = *Ammodramus lecontei*, ♂.

87. Tyrant Shrike. *Lanius Tyrannus*. length 8 Inches." = *Tyrannus tyrannus*.

88. "Georgia Wren. Length 5 Inches. very rare." = *Telmodytes palustris* (subsp.?).

89. "Red-shouldered Hawk. *Falco Lineatus*. length 19 Inches." = *Buteo lineatus alleni*, ♂.

90. "Red Tanager. *Tanager Rubra*. length 7 inches." = *Piranga erythromelas*, ♂.

91. "Yellow breasted Flycatcher. Length $5\frac{1}{2}$ Inches." = *Lanivireo flavifrons*.

92. "Great Heron. *Ardea Herodias*. Length 4 feet." = *Ardea herodias herodias*.

93. "Summer Sparrow. Length 6 Inches." = *Peucaea æstivalis bachmani*.

94. "Prairie Warbler. *Sylvia Minuta*. length $4\frac{1}{4}$ Inches." = *Dendroica discolor*, ♂.

95. "Blue yellow backed Warbler. *Sylvia Pusilla*. length $4\frac{1}{2}$ Inches." = *Compsothlypis americana americana*; 2♂'s.

96. "Crested Flycatcher. *Muscicapa Crinita*. length $9\frac{1}{2}$ inches." = *Myiarchus crinitus*.

97. "Yellow winged Sparrow. *Fringilla Passerina*. length 5 Inches." = *Ammodramus sacannarum australis*.

98. "Brown Gallinule. Length 12 Inches." = *Gallinula galeata*.

99. "Mottled Oriole. Female." = *Euphagus carolinus*, ♀.

100. "Marsh Wren. *Certhia Palustris*. length 4 Inches." = *Cistothorus stellaris*.

101. "Spotted Heron. Length $23\frac{1}{2}$ Inches" = *Nycticorax nycticorax naevius*. Juv.

102. "Black-crowned Warbler. Length $5\frac{1}{4}$ Inches." = *Dendroica striata*, ♂.

103. "Black headed Flycatcher. *Muscicapa Ruticilla*. length 5½ Inches." = *Setophaga ruticilla*. ♂ and ♀, ad.
104. "Red eyed Flycatcher. *Muscicapa Olivacea*, length 6 Inches." = *Vireosylva olivacea*.
105. "Orchard Oriole. *Oriolus Castanus*. length 6½ Inches" = *Icterus spurius*, ad. ♂.
106. "Blue Grosbeak. *Loxia Cærulea*. length 6½ Inches" = *Guiraca cærulea cærulea*. ad. ♂.
107. "Little Sparrow. Length 5½ Inches." = *Spizella passerina passerina*, ♂ and ♀, ad.
108. "White billed Woodpecker. *Picus Principalis*. length 20 Inches." = *Campephilus principalis*; ad. ♂.
109. "Red headed Woodpecker. *Picus Erythrocephalus*. length 9¼ Inches." = *Melanerpes erythrocephalus*.
110. "Mississippi Kite. *Falco Misissippiensis*. length 2 feet." = *Elanoides forficatus*.
111. "Little Woodpecker. *Picus Pubescens*. length 6¼ Inches." = *Dryobates pubescens pubescens*, ♂.
112. "Worm eating Warbler. *Sylvia Vermivora*. length 5¼ Is." = *Helminthos vermivorus*.
113. "Black Oriole. *Oriolus Niger*. length 10 Inches." = *Euphagus carolinus*, Spring ♂.
114. Solitary Flycatcher. *Muscicapa Solitaria*. "length 5½ Inches." = *Lanivireo solitarius* (subsp.?).
115. "Screech Owl. Length 8½ Inches." = *Otus asio* (subsp.). Gray phase.
116. "Brown Ibis. *Tantalus Fuscus*. length 2 feet." = *Guara alba*, juv. ♀.
117. "Small blue gray Flycatcher. *Muscicapa Cærulea*. length 4½ Inches." = *Poliophtila cærulea cærulea*. Ad. ♂ and ♀.
118. "Wood Ibis. *Tantalus Loculator*. length 3 feet." = *Mycteria americana*.
119. "Gold winged Woodpecker. *Picus Auratus*. length 12 Inches." = *Colaptes auratus auratus*; ad. ♂.
120. "Carolina Woodpecker. *Picus Carolinus*. length 12½ Inches." = *Centurus carolinus*; ad. ♂.
121. "Prothonotary Warbler. *Sylvia Protonotarius*. length 5½ Inches." = *Protonotaria citrea*; Ad. ♂ and ♀.
122. "Magnolia Warbler." = *Dendroica tigrina*, Ad. ♂.

List of Insects represented in Abbot's Portfolio of Georgia Birds.

- Plate 6. "*Sphinx lineata*."
 " 20. "Small blue Butterfly" = *Lycæna*.
 " 25. "*Noctua guara*."
 " 32. "Great Tiger Moth" = *Arctia*.
 " 45. "Clouded yellow Butterfly" = *Colias*.
 " 61. "Great meadow brown Butterfly" = *Satyrus*.
 " 62. "Purple hair streak Butterfly" = *Thecla*.
 " 65. "None so pretty Moth" = *Deiopeia*.
 " 67. "Cream spotted Tyger Moth." = *Callomorpha*.
 " 85. "*Papilio arythia*" = *Junonia*.
 " 87. (Grasshopper on ground; not named) = *Chortophaga*.
 " 88. "Ajax Butterfly." = *Papilio*.
 " 91. "Yellow spotted Tyger Moth" = *Alypia*.
 " 106. "Small yellow Butterfly" = *Terias*.
 " 111. "Yellow hook tip Moth" (Bombycid?).
 " 122. (Butterfly — name cut off) = *Agraulis*.

NOTES ON THE ANATOMY OF THE CUBAN TROGON.

BY HUBERT LYMAN CLARK.

THANKS to the kindness of Mr. Outram Bangs and Mr. J. L. Peters, a Cuban Trogon (*Priotelus temnurus temnurus*) collected by Mr. Peters, was some time ago placed in my hands for study. It was well preserved in alcohol and in excellent condition.

The pterylosis of the trogons was described by Nitzsch, who examined four species, but probably from skins. Subsequent writers seem to have relied on Nitzsch's figures. The spinal feather tract is quite passerine and those of the ventral surface are nearly as much so. The Cuban Trogon was not however seen by Nitzsch and shows some peculiarities which are worthy of descrip-

tion. These are however, mostly confined to the head and neck for the humeral, femoral, sternal, ventral and dorsal tracts are very similar to those of *Trogon viridis* as shown by Nitzsch's description and figures; the dorsal "saddle" however, is elongated elliptical rather than "elongated rhombic," as there are no distinct lateral angles.

The tracts of the head are entirely separated from those of the lower neck and throat, to a degree and in a manner which I have never seen in any other bird. On the middle of the forehead, between the eyes, is a dense, sharply defined tract, which forks anteriorly, a broad band passing forward and downward to the base of the upper mandible on each side; posteriorly the median tract becomes diffuse and loses itself on the back of the head. There are no contour feathers on the upper surface or on either side of the anterior end of the neck. On the lower surface of the head, beginning close to the base of the bill in the median line is a sharply defined tract about *five* feathers wide which very soon divides, the two branches diverging and narrowing rapidly; each passes up onto the side of the head, where it ends below the ear. The only other contour feathers on the head are in a small tract on each side, just in front of the eye; some few of these feathers extend up over the eye but more comprise a narrow band running from the angle of the mouth to the ear; anteriorly this tract does not quite connect with the lateral fork of the forehead tract.

On the upper side of the base of the neck, the spinal tract begins abruptly with a width of about five feathers; from its very start this tract is dense and well defined. On the lower surface of the neck, a lower cervical tract begins nearly as far forward as the ear; it is six or seven feathers wide and sharply defined from the first. It soon widens and forks, each fork giving rise to a sternal tract. From the anterior end of each sternal tract a branch passes upward onto the shoulder and joins the humeral tract. The outer distal corner of the humeral tract extends outward along the humerus to the elbow, the feathers of this area reminding one of tertiaries. The secondaries are eleven or twelve in number but one or two of those at the elbow are very small and in examination of a skin, there would seem to be but ten; Nitzsch says there are eight to ten secondaries in the trogons. The primaries are ten in number with

the sixth longest; the sequence is 6, 7, 5, 8, 4, 9, 3, 2, 1, 10; the eighth is 97 mm. long, the fourth is 90 mm. and the tenth, 45 mm.

The rectrices are twelve with ten major coverts; there is no covert for rectrix no. 1 (middle pair); the covert for no. 2 lies over its outer side; those for nos. 3, 4 and 5 are in the same relative position while that for no. 6 lies over its inner side. This is the usual passerine arrangement. The posterior end of the spinal tract becomes broad (ten feathers) and dense at the oil-gland where it ends, instead of being narrow there as shown in Nitzsch's figures; it is distinctly separated from the series of major upper tail coverts. The oil-gland itself is naked, without a tuft. The major under tail coverts are 14 in number but on each side pass into a well marked post-anal tract of covert feathers; the major coverts of the middle rectrices are pushed out of position, so that coverts 1 and 2 lie, one over the other under rectrix 2, covert 3 is between rectrices 3 and 4, covert 5 is under rectrix 4, 6 is under 5 and 7 under 6. It is not clear whether covert 7 is properly a major covert or is merely a large minor covert pushed into the major covert line. The whole question of the relation of under coverts to rectrices demands investigation.

Passing to the internal anatomy, we find the palate is essentially as Forbes found it in *Pharomacrus*,¹ but the vomer is shorter and stouter than in that trogon and does not extend forward between the maxillopalatines. The sternum, as in other trogons, has two deep incisions on each side, in the posterior margin, and the manubrium though long and stout is not at all forked. Four pairs of ribs reach the sternum but the fifth pair falls short by over a millimeter, its tip resting only against the base of the fourth.

The tongue is not "short and three-sided," as trogon's tongues are said to be, but is 10 mm. long and has a bifurcate tip, each half of which is a pointed horny bit, one millimeter long. Posteriorly the tongue is 4 mm. wide with each posterior corner developed into a conspicuous conical horny point over a millimeter long. There is no crop and the gizzard is large and spherical, 18 mm. in diameter. It was crammed full of fruits 7-8 mm. long by 4-5 mm. thick; there were 10-12 of these fruits, some of which were considerably

¹ Proc. Zool. Soc. London, 1881, p. 836.

macerated, however. The intestine was 180 mm. long while the cæca were 36 and 28 mm. respectively. The cæca are thus relatively very long, much longer than in the species of Trogon and *Pharomacrus* examined by Garrod.

FURTHER NOTES AND OBSERVATIONS ON THE
BIRDS OF HATLEY, STANSTEAD COUNTY,
QUEBEC, 1916-1917.

BY H. MOUSLEY.

IN 'The Auk' for 1916, Vol. XXXIII, pp. 57-73, 168-186; will be found my first account of the birds of this district covering a period of five years (1911-1915) and embracing 122 different species. Since that account was written a further 41 have been added to the list, and in this paper I propose to deal with these new species in the same way as previously, carrying on the numbering also from where it left off. Before proceeding with these however, I would like to make a few remarks on the seasons of 1916 and 1917, and the increase or otherwise of certain interesting birds, as well as to mention the fact that the breeding list has been increased from 63 to 77 species, the fourteen new ones whose nests, eggs or young had not been previously taken being, Marsh Hawk, Red-shouldered Hawk, Sparrow Hawk, Long-eared Owl, Belted Kingfisher, Red-headed Woodpecker, Meadowlark, Pine Siskin, Scarlet Tanager, Nashville, Black-throated Blue, Blackburnian, and Black-throated Green Warblers, as well as the Water-Thrush. Of the two aforementioned seasons probably 1917 was the coldest, wettest and most backward of the two, and many species, especially the warblers, were held up on migration, and were from ten days to a fortnight behind time. Ruffed Grouse suffered severely, most of the chicks being lost in both seasons from exposure to the wet and cold, and these birds in my opinion badly need a three years close season, not only here but in many other parts of the country, to recuperate.

In contrast to the lateness of the warblers in arriving many of the earlier species were well on time, and I obtained my earliest records so far for several species, the most notable being amongst the Blackbirds and Sparrows, the latter family also being especially numerous, in fact, 1917 might be called a White-crowned Sparrow year judging from my own experience, and that of some of my friends, of the increase in the numbers of this otherwise somewhat rare migrant. Looking back over the past seven years, I have no hesitation in saying that the following birds are gradually increasing and spreading over this district, viz., Bronzed Grackle, Cedar Waxwing, Prairie Horned Lark, Meadowlark, Migrant Shrike, Purple Finch, and Chestnut-sided Warbler, and I hope like other parts of the Province of Quebec (where it is said to be much on the increase of late) we may yet get the Killdeer Plover, for I saw three of these birds during March and April of the present year 1917, the only other previous record being one on July 31, 1915.

Bronzed Grackles first invaded the village of Hatley in 1916, and nested in some of the firs and pines. Cedar Waxwings were unusually abundant in 1916, and I had no difficulty in locating about a dozen nests, as against a total of only one or two for each of the previous four years. On September 18, 1916, I saw the largest flock of this species noted so far, which consisted of fifty birds. Migrant Shrikes are certainly most interesting birds, and I have found more nests during the past two years than all the previous five put together. The favorite site here is certainly an apple tree, for out of ten nests located, seven have been in these trees at an average height of ten feet, whilst the remaining three have been in firs, one at the record height of thirty-four feet above the ground, (see Auk, Vol. XXXV, 1918, pp. 33-36), the other two being ten and eighteen feet. Purple Finches were a feature of 1916, and I saw birds in my garden all through the months of April to October. Prairie Horned Larks were first seen in 1917 on March 2, my earliest date so far, but only one nest was located in the two years with the characteristic paving as described in 'The Auk,' Vol. XXXIII, 1916, pp. 281-286, and Vol. XXXIV, 1917, p. 388.

As an offset to the above increase may be mentioned the 'status quo,' if not actual decrease in the case of the two latter, of such interesting species as the Indigo Bunting, Rose-breasted Grosbeak,

Catbird and Black-billed Cuckoo, and in this category not unfortunately but most fortunately may be included the Cowbird, as the only other victim besides the Red-eyed Vireo and Yellow Warbler mentioned in my previous notes, is that of a Junco who was seen feeding a young Cowbird just able to fly on June 24, 1916. Of the Indigo Bunting only one pair was seen on the roadside half way between Hatley and Coaticook on June 4 of the present year 1917, and of the Rose-breasted Grosbeak none were observed in 1916, and only one male and female in May, 1917. As regards the Catbird and Black-billed Cuckoo they were never by any means plentiful, but during the past two years their numbers seem to have dwindled to almost the vanishing point. Of the former only one nest has been located in the past two years and very few birds observed at any time, whilst of the latter, none were seen in 1916, and only one in 1917 on May 28, and no nests were found in either year. The number of Downy and Hairy Woodpeckers is not at all satisfactory, and it is becoming quite an event to see one of the latter, and ever since 1912 (when they were so abundant) Vireos have been falling off in numbers, so much so that I have not found a single nest of the Warbling since, and only a very few of the Red-eyed, which latter in 1912 were found all over the place, sometimes three and four a day. Swamp Sparrows apparently since 1913 have also been getting less and I rarely come across more than one or two nests a season now. Concerning my favorites, the Sandpipers and Warblers, I regret to say that owing to the temporary raising of the outlet of the dam at the head of 'the marsh,' in 1916, I saw very few of the Limicolæ, as the increased depth of the water submerged most of the mud banks, and only such species as the Greater Yellow-legs were able to use them, a party of seven (the largest so far) being seen on August 29. Two examples of Wilson's Snipe were noted on May 4, of the same year, thus giving me my first spring record for this species. Early in May, 1917, I changed my residence temporarily for one some three miles further north and remained there until the end of the year, only visiting 'the marsh' on a few occasions. On one of these however (September 24), I was fortunate enough to add two new species to my list, securing an example of the American Pipit and Little Green Heron, the latter being an especial good find for these parts. But

what I missed in the Sandpipers by my change of residence, I more than made up for in the Warblers, as my new hunting grounds furnished me with two examples of the Tennessee, as well as a nest and set of eggs of the Nashville and Blackburnian, the first two birds being new to my list. An account of these will be found in the annotated notes. As regards the nest of the Blackburnian Warbler (the only one of the thirteen summer visitants remaining so far unfound, see 'The Auk,' Vol. XXXIV, 1917, p. 190). I was fortunate enough on June 8, to notice the female with building material in her beak, fly direct to the site, which was a fir tree on the outskirts of a small wood. At this date building operations had only just commenced, and it was not until June 19, that the nest held the full complement (usually four, sometimes five) of four eggs, which, by the way, were the most brittle I have ever handled, one collapsing as it was being lifted out of the nest, whilst two of the remaining three could not be drilled with a true round hole, the drill sinking into the shell immediately a little pressure was applied, and thus causing a somewhat jagged edge. The ground color is quite distinctive being of a bluish tint with somewhat bold blotches of rufous brown round the larger end, the average size of the set being $.70 \times .49$.

The nest (which was presented in situ to the Victoria Memorial Museum at Ottawa) was thirteen feet above the ground and placed on a horizontal branch thirteen inches out from the trunk, and twenty-one from the tip of the branch, and was composed outwardly of small fir twigs woven together and held by spider's silk, the lining consisting of fine dry grasses, some usnea lichen, and a few fine rootlets, the dimensions being, outside diameter $3\frac{1}{4}$, inside $1\frac{1}{2}$ inches. Outside depth 2, inside $1\frac{1}{2}$ inches. As regards the male I do not think he does any building at all, as I never once saw him at the nest, nor did he appear to accompany the female as was the case with the Nashville, but I could generally hear him some little distance off singing in the tree tops.

Besides this I saw many Cape May Warblers in full breeding plumage, a little tamarack tree on one occasion holding no less than five males and one female, and later on in October, I obtained my first fall record for the Yellow Palm Warbler and Woodcock. Of the former I had only seen a very few examples in the spring, and

of the latter only one other bird, which with the present one makes two in seven years, so that the sport of woodcock shooting round Hatley cannot be said to be fast and furious. The Blackpoll Warbler was also a new and interesting addition to my list, but this was found at Ayers Cliff, some few miles away, and is dealt with fully elsewhere.

Other interesting items include a nest and set of eggs of the Marsh Hawk and Meadowlark besides the taking of a small series of Dr. Townsend's new subspecies, the Labrador Chickadee (*Penthestes hudsonicus nigricans*), in May and early September, some of which were given to Dr. Townsend and the rest to the Victoria Memorial Museum at Ottawa, these examples being the first Canadian ones to be presented to that institution.

Whilst working over this new ground (which in general was of a more swampy nature than the other) I also had the pleasure of finding the pitcher plant in bloom, as well as six new orchids, of which Hatley now possesses thirteen species to my knowledge.

The nest of the Red-headed Woodpecker was likewise in this locality, but is dealt with in the following annotated list, in which the name of Mr. W. E. Greer also appears not only in connection with this bird, but with several others as well. Mr. Greer, besides being Secretary-Treasurer of the Township of Hatley, farms about 150 acres of land at Hatley Centre, and is a taxidermist of some ability as well, and at one time possessed a fine collection of about one hundred birds of his own mounting, representing nearly eighty local species. This collection was unfortunately destroyed in a disastrous fire in 1909 that burnt Mr. Greer out of house and home, besides destroying all his records. The house was rebuilt and the collection is also in the slow process of being reformed. In his connection as a taxidermist many rare birds were brought to him to be mounted, which had either been shot in the district, or caught in traps set for muskrats or other small mammals. He thus gained a more intimate knowledge of the ducks, hawks and owls of the district than I have been able to do, and I am much indebted to him for valuable help with regard to these species, as will be seen in the list that now follows, of the forty-one new species added since 1915.

123. **Podilymbus podiceps** (Linnæus). **PIED-BILLED GREBE**.—Not uncommon fall migrant. So far I have not come across any of these birds, but Mr. Greer tells me he has seen them occasionally but has never mounted any. Mr. Stephen Clarke of Hatley Centre however, informs me that he has shot a few on Lake Massawippi, usually in the month of September, and on one occasion when fishing in the company of Mr. Fleming of New York, he obtained three at one shot. On this gentleman relating the incident to some of his friends the story was put down as "another of those fishing yarns" from the fact that these birds in company with Loons are generally looked upon (to a large extent erroneously) as being almost unshootable, from their habit of rapidly diving at the flash or report of a gun, hence the local names of devil diver or hell diver which this species enjoys.

124. **Gavia immer** (Brünnich). **LOON**.—Fairly common fall transient. My authority for including this species in my list rested at first on two mounted examples belonging to Mr. A. Murray of Ferncliff, Massawippi, one of which was shot on Lake Massawippi about twenty years ago, whilst the other was taken about the same time entangled in some fishing tackle. Mr. Greer however, informs me that he generally gets a few to mount most years, but never in the spring, only fall birds, and these, with only one exception, immatures.

125. **Uria lomvia lomvia** (Linnæus). **BRÜNNICH'S MURRE**.—Rare transient. Probably this bird is more of an accidental transient than anything else, being blown inland by easterly gales, one of which had been raging just previous to two examples being obtained on the river Massawippi, just below the village of North Hatley, on December 10, 1917. One of these two was shot by Mr. J. Robert of North Hatley and weighed 1 lb., 2 oz., the other by Mr. Alec McKay of Hatley Centre, which bird weighed 2 lbs. 1 oz. Both were in the hands of Mr. Greer (when I saw them on December 12) and were still in the flesh, waiting to be skinned and mounted for their respective captors. The great difference in the above weights would no doubt be accounted for, by one being practically an adult, the other an immature. Mr. J. E. Harting in his 'Hand-book of British Birds' 1901, p. 470, gives the weight of *lomvia* as 2 lbs., 10 oz., and that of *troile* as 2 lbs. 5 oz., whilst Mr. Thos. H. Nelson in his 'The Birds of Yorkshire,' 1907, p. 721, gives the average weight of the latter as 2 lbs.

126. **Rissa tridactyla tridactyla** (Linnæus). **KITTIWAKE**.—Rare and accidental transient. My authority for including this species in my list rests on a single immature example which Mr. Greer mounted for Mr. Clarence W. Clarke of Nepperhan Heights, Yonkers, N. Y., who on August 17, 1912, whilst staying at North Hatley, captured the bird on Lake Massawippi under somewhat peculiar circumstances, as will be seen from the following extract of a letter dated October 30, 1917, which Mr. Clarke wrote me on the subject. He says, "I was angling for bass, using live minnows for bait, without any sinker, the minnows swimming near the surface, when I noticed a lone bird circling around the boat. I had about

seventy-five feet of line out, when it suddenly made a dive and flew off with the minnow carrying the entire line out of the water. This operation was repeated with two other minnows. I finally changed my bass hook for a small minnow or bait hook, and on the fourth try I hooked the bird and reeled it into the boat where it fought and struggled hard to get away, but it was well hooked. I put it in my bait can and took it alive to the taxidermist, and it now occupies a place over my mantelpiece at Yonkers. It was a very interesting and unusual catch, and few of my friends would believe that I captured the bird on a fish hook, setting it down for simply another one of those fish stories."

127. *Larus argentatus* (Pontoppidan). HERRING GULL.—Not uncommon fall transient. Mr. Greer tells me this gull is fairly common in the fall on Lake Massawippi, and he has mounted several examples for various people. Mr. W. Bassett of North Hatley has one which he tells me he shot at North Hatley in November, 1911 or 1912.

128. *Mergus americanus* (Cassin). AMERICAN MERGANSER.—Not uncommon transient. October 11, December 6. On the above date in October, 1916, a head and neck only of a female merganser was given to me, the bird having been shot on the same day on the river Coaticook near Compton about seven miles from Hatley. On measuring the distance from the nostril to the end of the bill I found it to be 1.30 inches, and from the rear of the nostril to the lore feathers .55 of an inch, thus proving it to be one of the above species and not a Red-breasted Merganser. Mr. Greer has a mounted head and neck of a male in his collection which was shot on Lake Massawippi, and on December 6, 1917, I saw a small flock of seven on this same lake, one of which, a female, was shot a few days after, and shown to me by Mr. Greer in the flesh on December 12. This bird weighed 3 lbs. Mr. Stephen Clarke of Hatley Centre has a female mounted example of this species, or at least one of his sons has it now, and which I saw on December 13, 1917.

129. *Mergus serrator* (Linnaeus). RED-BREASTED MERGANSER.—Not common transient. December 6. This Merganser is decidedly rarer than the preceding one, Mr. Greer telling me that previous to this year, he can only call to mind having mounted two examples. On the above date in December, 1917, I saw three examples on Lake Massawippi at North Hatley, one of which, a female, was shot on the following day by Mr. V. Thomas of North Hatley, on the Massawippi River just below North Hatley, and this bird Mr. Greer showed me on December 12, just after he had mounted it. I took the measurement from the nostril to the end of the bill and found it to be practically $1\frac{1}{4}$ inches.

130. *Lophodytes cucullatus* (Linnaeus). HOODED MERGANSER.—Rare transient. My authority for including this species in my list rests on a female example which Mr. Greer tells me he mounted some years ago, the exact records of which are unfortunately not to hand, but as far as he can remember, the bird was either shot or caught in a muskrat trap at Little Magog Lake.

131. *Querquedula discors* (Linnaeus). BLUE-WINGED TEAL.—Rare transient. The only examples I have heard of so far are one that Mr. Greer tells me he mounted in April 1910, the bird being a female, and a few that Mr. Stephen Clarke of Hatley Centre informs me he has shot from time to time but has never had mounted.

132. *Aix sponsa* (Linnaeus). WOOD DUCK.—Rare transient. I have not come across this handsomest of ducks so far in life, but Mr. Greer tells me he has mounted three male examples, one for Mr. S. J. Clarke of Hatley Centre, which was caught in a muskrat trap on Little Magog Lake in the middle of April about eight years ago, another for Mr. D. C. Bell of North Hatley, which was shot also on Little Magog Lake on April 26, 1910, and the third for Mr. S. A. Ball also of North Hatley which was shot on the Magog River somewhere about the year 1908. The first two examples were shown to me on December 6, 1917, and at that time were still in the possession of their respective captors. It is probably only a matter of time before this beautiful duck will have to be numbered amongst the extinct species.

133. *Clangula clangula americana* (Bonaparte). AMERICAN GOLDEN-EYE.—Rare transient. My authority for including this species in my list rests on an example which Mr. Greer tells me he mounted for Mr. R. G. Spriggins of North Hatley on December 5, 1909. The bird which is an adult male was shot by Mr. Spriggins along the eastern shore of Lake Massawippi, and when I saw it on December 6, 1917, was still in the possession of the captor.

134. *Oidemia americana* (Swainson). AMERICAN SCOTER.—Rare transient. My authority for including this species in my list rests on an adult male, which Mr. W. Bassett of North Hatley tells me he found dead on the ice on Lake Massawippi about December 6, 1915. Mr. Bassett had noticed the bird about for several days previously, on an open drain near the shore of the lake and had made up his mind to secure it, but on arrival at the spot about the above date he noticed the bird some distance out on the ice of the lake. For the purpose of heading it inland he made a detour on the ice, but on gradually drawing closer and closer he was surprised to find it did not move, and on eventually reaching the bird it was found to be dead. He kept it for several days and eventually sent it to Mr. Greer on December 13 who informs me that it was too far gone to preserve, but he confirms the record as being an adult male of the above species.

135. *Butorides virescens virescens* (Linnaeus). LITTLE GREEN HERON.—Rare transient; September 24. The above date in 1917 is the only one on which I have come across this handsome little heron, which in company with another was feeding in the center of "the marsh." Both birds got up when I was a long way off and not being familiar with the species at the time, I was unable to make out what they were. One made for some adjacent woods whilst the other directed its course to a neighboring small marsh and sheet of water, which my son and I call the "Smiling Pool." I followed the latter backwards and forwards from this pool

to "the marsh" for two and one half hours, before I was able to secure it at last at the former place. The bird was sent in the flesh and presented to the Victoria Memorial Museum at Ottawa.

136. *Nycticorax nycticorax naevius* (Bodd.). BLACK-CROWNED NIGHT HERON.—Rare transient. I am indebted to Mr. Stephen Clarke of Hatley Centre for first being able to include the above species in my list. The record rests on a mounted example in the possession of Mr. Clarke, which he shot on or about April 15, 1908, at Fitch Bay some twelve miles from Hatley, and when shown to me on November 5, 1917, proved to be an adult bird. When obtained it had three occipital plumes but one of these has since been accidentally pulled out. Mr. Greer also tells me he set up one of these birds for the late Mr. Hollis J. Hitchcock of Massawippi about 1907 or 1908, which was caught in a muskrat trap at Lake Massawippi.

Since writing the above I have had an opportunity of more carefully examining Mr. Clarke's bird, and find that the three occipital plumes are still there, one plume having at some time so perfectly overlapped one of the others, as to give the bird the appearance of only having two, and thus causing Mr. Clarke to think that one had been abstracted.

137. *Cathartes aura septentrionalis* (Wied). TURKEY VULTURE.—Rare transient from the South. July 31. On the above date in 1917 whilst driving from Hatley to Massawippi, a bird of this species flew off the road and alighted on the fence alongside. My youngest son who was with me at the time, was the first to notice it, exclaiming "why there is a white headed crow or something!" I looked up just in time to catch sight of the bird as it left the fence and alighted on the ground not far from the road, and at the edge of a large wood. I got down and followed the bird about the wood for some time, flushing it out on one occasion quite close to my son who was standing in the road holding the horse, when he got a good view of it, telling me afterwards that it looked like a young turkey. The bird was evidently an immature as it only took short flights about the wood, and I got several good views of it, as it sat perched in the trees, the grayish down on its bare head, no doubt causing the allusion at the moment to the "white-headed crow or something!" of my son. I visited the spot again the following day but nothing more was seen of it.

138. *Falco sparverius sparverius* (Linnaeus). SPARROW HAWK.—Rare summer visitant. June 15, 30; July 8. The earliest of the above dates in June, 1916, was the first occasion on which I had observed this handsome little hawk. The bird was quite close to me so that identification was an easy matter. On the latter date in June I saw another, and one again on July 8. Of course it is possible that these three examples may have been one and the same bird, the dates certainly suggesting that on occasions it may be a rare breeder in the neighborhood, in seeming confirmation of which Mr. Greer tells me that he saw an adult bird with young near Waterville in the summer of 1917.

139. *Asio wilsonianus* (Lesson). LONG-EARED OWL.—Rare resident.

Mr. Greer tells me that a pair of these owls have nested in his cedar swamp at Hatley Centre for at least four years if not longer, and that three or four examples have passed through his hands to mount during the past eight years, besides one which he has in his own collection.

140. *Asio flammeus* (Pontoppidan). SHORT-EARED OWL.—Rare transient. Mr. Greer tells me that he has only had one of these owls brought to him to mount by Mr. Oral Bean of North Hatley. Mr. Greer found one himself lying dead on the roadside not far from his house at Hatley Centre, which had probably been killed by flying against the telephone wires.

141. *Scotiaptex nebulosa nebulosa* (J. R. Forster). GREAT GREY OWL.—Rare winter visitant. Mr. Greer tells me he has only mounted two examples of this large and rare owl, one for Mr. H. R. Worthen of Ayers Cliff, which bird was obtained about January 19, 1911, near Ayers Cliff, and the other for Mrs. Elmer Colt of North Hatley, this bird being shot in her sugar woods by Mr. Brissette, so she tells me, some time in March about twelve years ago, and when I saw it on December 21, 1917, it was still in her possession.

142. *Cryptoglaux funerea richardsoni* (Bonaparte). RICHARDSON'S OWL.—Rare transient. Mr. Greer tells me he has only mounted one example of this rare winter visitant from the north, the exact records of which were unfortunately destroyed in the fire of 1909.

143. *Cryptoglaux acadica acadica* (Gmelin). SAW-WHET OWL.—Not uncommon resident. I have never seen this, the smallest of our owls, in life, but on April 4, 1916, I heard sounds proceeding from a wood near my house, which might well be likened to the filing of a saw, and no doubt proceeded from one of these small owls whose nest was probably in the locality, as the sounds were heard shortly before and after the above date by one or two other people. However, on October 20, 1917, an example was given to me in the flesh which had been shot the same day in a cedar swamp about a mile north of Hatley village, and which is being mounted by Mr. Greer, who tells me that he generally gets a few every year, only later in the fall, three examples being sent in last year, and from conversations I have had with many other farmers in the district it appears this little owl is fairly well distributed.

144. *Otus asio asio* (Linnæus). SCREECH OWL.—Rare transient. When visiting Mr. A. Murray of Ferneliff, Massawippi, on July 27, 1917, a nicely mounted example of this little owl (in the gray phase of plumage) was shown to me, which had been shot about two years ago on Mr. Murray's estate. I have never seen the bird myself in life nor can I remember ever having heard it calling, and Mr. Greer tells me no examples have so far been brought to him to mount.

145. *Bubo virginianus virginianus* (Gmelin). GREAT HORNED OWL.—Rare resident. My only acquaintance with this large owl was on October 11, 1916, when an example was shown to me in the flesh, the bird having been shot in the neighborhood of Hatley. This example turned the scales at 3 lbs. 14 oz., which will help to give some idea of its size, as

compared with the little Saw-whet Owl which only weighs some few ounces. Mr. Greer informs me that he mounted two examples of this owl in the winter of 1916-17, and has seen the bird in the summer months, so that I think I am justified in calling it a resident species.

146. *Nyctea nyctea* (Linnaeus). SNOWY OWL.—Rare and irregular winter visitant. In the winter of 1905-06 there was an unusual flight of these owls all over Maine and the adjacent states as recorded by the late Mr. Ora W. Knight in his 'Birds of Maine' 1908, p. 263, wherein he states that fully two hundred were killed in Maine alone. In this same year they visited Hatley, and several were obtained, one by Mr. A. E. Gage of Hatley, which bird was mounted and is now in the possession of Mr. H. F. Pope also of Hatley. It is a fine specimen and quite regularly barred. Mr. Murray of Ferncliffe, Massawippi, also showed me a mounted example, which, if I remember rightly, he said was shot in his own grounds, at all events if not, it was in the immediate neighborhood.

Mr. Greer informs me as well that he has mounted quite a number of these owls, eight or nine one winter (probably the one mentioned above), one of which was almost pure white, with only the faintest trace of dusky spots or barring.

147. *Surnia ulula caparoch* (Müller). HAWK OWL.—Rare winter visitant. Mr. Greer tells me that he had one of these owls in his collection (previous to the fire) which was shot by his brother along the eastern shore of Lake Massawippi. He has also mounted two or three other examples, one for Mr. W. Bassett of North Hatley in February, 1913, which bird was also obtained along the eastern shore of Lake Massawippi, and when I saw it on December 6, 1917, was still in the possession of the captor.

148. *Picoides arcticus* (Swainson). ARCTIC THREE-TOED WOODPECKER.—Rare fall and winter visitant. I have to thank Dr. C. L. Brown of Ayers Cliff for drawing my attention to the fact that he had seen a mounted example of a Three-toed Woodpecker (but was unable to say which kind) that had been shot in the grounds of Ferncliff, the residence of Mr. A. Murray of Massawippi. I called upon that gentleman on July 27, 1917, and was shown the bird, which turned out to be a male example of the above species, and was shot in the fall of 1915 quite close to Mr. Murray's house.

Mr. Greer of Hatley Centre also informs me that he had a male in his collection (before it was destroyed) which was shot on his own farm by his brother some years previous to the fire in 1909.

149. *Melanerpes erythrocephalus* (Linnaeus). RED-HEADED WOODPECKER.—Very rare summer visitant. May 15 to August 15; eggs, June, young, July. When on July 14, 1917, I received a letter from Dr. C. L. Brown of Ayers Cliff saying that he had noticed a Red-headed Woodpecker on several occasions at a certain spot, and thought there might be a nest, as he had that day seen the bird's mate also, I marked the day as a red letter one, although I must admit I felt somewhat sceptical, as Red-headed Woodpeckers in these parts are certainly a

desideratum. However, July 16 found me at the spot indicated which was on the roadside between Massawippi and Hatley Centre, on the farm belonging to Mr. Geo. Raeburn, who informed me that he first noticed the birds about the middle of May, and that they had a nest and four young on the roadside not far off, so I went to investigate and sure enough it was not long before I caught sight of both parent birds making for a decayed maple tree close to the roadside, where the nest was found about fifteen feet above the ground. Not wishing to disturb the birds I did not climb to it then, nor have I done so since, and can therefore give no dimensions of nesting hole at present, as I am anxious to see whether the birds will return next year and occupy the old site again. I might however, casually mention that the entrance hole was not a perfect circle, being more of a heart shape from some cause or another. Five days later, or on July 21, I again visited the spot and took some photos of the nest site, with both parent birds near the hole. At first they were somewhat nervous on seeing me and kept up a great chatter before one of them ventured to the hole and fed the young. Afterwards they became accustomed to my presence (as I stayed there for about an hour during which time the parents fed the young about every quarter of an hour) and flew direct to the site without any fuss.

On the thirty-first I visited them again, the young birds being still in the nest, but pushing their heads well out whenever they heard the parent birds coming with food. It was between this date and August 4 that they left the nest, as on visiting the site on the latter date they had gone, but I saw one of the parents in a field not far off and have no doubt the young were there also, but I was unable at the time to go after them. I left Hatley shortly after and did not return until the twenty-sixth, when I again visited the site, but failed to find either the parents or young, but Mr. Raeburn has since told me that he saw them on several occasions near his house up to the fifteenth of the month, after which date they disappeared and were not seen again, so that this would account for my failing to find them on the twenty-sixth.

As regards other instances of this handsome and interesting bird having been seen in the district is one noted by Dr. Brown about three years ago at Burroughs Falls, which is not so very far from Ayers Cliff, and Mr. Greer tells me that his brother also saw one some twelve years ago or more near North Hatley. Mr. Stephen Clarke of Hatley Centre has a mounted adult bird, which he shot on his farm about ten years ago, in the month of September, and he also tells me that he had seen one other example some years previously.

150. *Antrostomus vociferus vociferus* (Wilson). WHIP-POOR-WILL. Uncommon summer visitant; May to September. To give the exact status of the Whip-poor-will at Hatley is not an easy matter owing to the secretive and nocturnal habits of the bird. Personally I have only seen one example on the evening of June 30, 1916 (when driving home from Coaticook a bird flew across the road from the outskirts of a large wood which I was enabled to identify as belonging to this species), but this may

be partly accounted for, seeing that I am a home bird and very rarely go out at night, still it cannot be plentiful or surely I should have flushed a bird or two in the daytime, during my constant field work for the past seven years. In the summer of 1917 two notices appeared in the local papers to the effect that the bird had been heard not far from Hatley on the Waterville road, and also at the head of Lake Massawippi near Ayers Cliff, and this unfortunately is the sum total of my data regarding the status of this most interesting and useful bird in the neighborhood of Hatley. Mr. Greer tells me he has never had one of them brought to him to mount, during his nineteen years residence in these parts, which is some indication that the birds are rarely obtained.

151. *Empidonax flaviventris* (Baird). YELLOW-BELLIED FLY-CATCHER.— Rare transient; June 5, 11; September 1. My first acquaintance with this interesting little Flycatcher was on the above date in September, 1916, when I obtained an example which was the only one seen that year. On June 5 of the following year I secured another and this with the one already mentioned were sent in the flesh at the time and given to the Victoria Memorial Museum at Ottawa. It is probable that this species may breed here on rare occasions for on the latter date given in June I came across two more, which gave me the impression that they were a pair and might be nesting in the locality, which was of a moist nature with mossy hummocks about and entirely suited to their requirements. However, I was unable to find the nest at the time nor did I see the birds again at subsequent visits, or any in the fall.

152. *Loxia curvirostra minor* (Brehm). AMERICAN CROSSBILL.— Irregular winter visitant, sometimes common. I have not yet had the pleasure of coming across this interesting bird so far myself, but Mr. Greer tells me that he had two mounted ones (a pair) in his collection before it was destroyed by fire, and has seen them in large flocks on several occasions, more especially during one winter when they and Pine Grosbeaks were unusually numerous.

153. *Loxia leucoptera* (Gmelin). WHITE-WINGED CROSSBILL.— Rare and irregular winter visitant; August 31, October 27. On August 31, 1916, which is an early date for this species, I saw two strange birds feeding on the seeds of a tall hemlock tree in an open space of a somewhat large wood. Of these I secured one which turned out to be a female of the above species, and was sent in the flesh and given to the Victoria Memorial Museum at Ottawa. None were seen again until October 27, when out of a flock of fifteen I secured a young male. In describing the status of the Crossbills in Maine the late Mr. Ora W. Knight in his 'Birds of Maine' 1908, p. 376, uses the following words: Eccentric; Erratic; Irregularly Sporadic; and what better could be found to sum up the wandering nature of these curious birds. Mr. W. E. Greer of Hatley Centre informs me that he has only met with this species on one occasion in the nineteen years he has resided in the district.

154. *Progne subis subis* (Linnæus). PURPLE MARTIN.— Rare tran-

sient. Mr. Greer tells me that some twelve or fifteen years ago, he had a small martin house erected on his farm at Hatley Centre one summer, in order to try and induce a few martins he had noticed the year before to remain and breed. This house, however, became tenanted by Tree Swallows before the arrival of a pair of martins, which after investigating and hanging round for a few days, during which time sundry fights for the possession of the house took place, eventually left, as the Tree Swallows could not be ejected. At intervals since then Mr. Greer has seen odd pairs now and again, and as late as 1917 a pair were seen for one day only. It is evident from the above that a few stray birds pass through this district now and again, but neither Mr. Greer or myself know of any breeding records, nor do we think it at all likely that any exist in the immediate neighborhood.

155. *Vermivora rubricapilla rubricapilla* (Wilson). NASHVILLE WARBLER.—Rare summer visitant; May 23 to September 22. Eggs, June 15. My first acquaintance with this interesting species was on August 16, 1916, when an example was obtained and sent to the Victoria Memorial Museum at Ottawa see 'The Auk,' Vol. 34, 1917, p. 214. I next saw the species on May 23 of the following year and from then to June 2 nineteen examples were noted, see 'The Auk,' Vol. 34, 1917, p. 484. Out of this number apparently only one pair remained behind to breed (as no others were seen during the summer) the female being seen with building material in her beak on June 5. It was not however, until June 15 that their nest was located at the foot of a spirea bush on a little mound, well sunk into the surrounding hair cap moss (*Polytrichum commune*) and dwarf cornel or bunchberry (*Cornus canadensis*) of which the mound was carpeted. It was entirely hidden from sight and would never have been found had I not flushed the female from her set of five eggs. The nest was composed outwardly of some moss and fine dried grasses, the lining consisting of very fine grasses, hair like rootlets and some pine needles, the dimensions being as follows, viz.; outside diameter 3, inside $1\frac{1}{4}$ inches; outside depth $1\frac{1}{2}$, inside $1\frac{1}{4}$ inches. The eggs were nicely and evenly marked and zoned at their larger ends, the average dimensions of the five being $.56 \times .46$. On several occasions when I observed the female with building material in her beak, she was accompanied by the male who always flew into a tamarack tree and commenced to sing (and I often saw him in it afterwards) and it was not far from this tree that the nest was eventually found. I am of the opinion that the male does very little if any nest building, contenting himself with following his partner about on foraging expeditions and singing the while no doubt to encourage her.

In the fall I only saw two examples, one on September 1, and the other on the 22d, but this may be partly accounted for no doubt from the fact that I was absent from Hatley between the thirteenth and twenty-fifth of August, although I am inclined to think (judging from past experience) that the number seen in the spring was abnormal and was due to an unusual wave of the species.

156. *Vermivora peregrina* (Wilson). TENNESSEE WARBLER.—Rare transient; May 26–27. For the past six years I have been anxiously looking out for this warbler without success until May 26, 1917, when three examples were observed, out of which I secured two, and presented them to the Victoria Memorial Museum at Ottawa. The following day I saw another, thus making a total of four only for the year, as none were seen in the fall. The last example was by itself, but the other three were in the company of a mixed flock of other warblers, consisting of one Blackburnian, one Bay-breasted, one Chestnut-sided, two Nashvilles and several Myrtles and Magnolias, as well as a few Ruby-crowned Kinglets.

157. *Dendroica tigrina* (Gmelin). CAPE MAY WARBLER.—Rare transient; May 22–30; August 27 to September 12. My first acquaintance with this striking and usually rare warbler was on August 28, 1916, when an example was obtained as well as another on the thirtieth, both being given to the Victoria Memorial Museum at Ottawa. Two others were seen on the former date as well as one on September 12, making a total of five for that year. In the following spring they were first seen on May 22, and from that date to the thirtieth a total of twelve were observed, three of this number being obtained and again given to the Museum at Ottawa. In the fall they were first noticed on August 27, and from that date until the first of September another seven were noted, making a total of nineteen for 1917, or twenty-four for the two years. They were never very difficult to approach and could generally be found frequenting a certain restricted area. On one occasion I obtained a snapshot of five males and one female in a little tamarack tree, this female, if I remember rightly, being one of the only three seen out of the above total of twenty-four birds. It is a curious fact (not fiction) that the last example seen of this warbler in 1916 was on September 12, and it flew out of the very same birch tree, in which a week later I found the Myrtle Warbler imbibing sap (see 'The Auk,' vol. 34, 1917, pp. 484–485) from sapsucker holes. Could it have been engaged likewise I wonder?, for I have since learned that it has been recorded as doing so on New Providence, Bahamas, see 'The Auk,' Vol. 30, 1913, p. 155.

158. *Dendroica striata* (J. R. Forster). BLACK-POLL WARBLER.—Rare transient; May 28. The only occasion on which I have come across this warbler was at Ayers Cliff,—about six miles from Hatley, on the above date in 1917, when in a small alder bush near the junction of the river Tomifoby with Lake Massawippi, an adult male was seen at close quarters for several minutes, making identification absolutely sure.

The elevation of this spot is only some 550 feet above sea level, which is a low one for migrating Black-polls in these parts I imagine, judging from Allen's 'Birds of New Hampshire,' 1903, pp. 57–58, 163–165, in which we are told that the Black-polls at all events in the central and northern parts of the state are only found migrating through the White Mountains at an elevation of 2000 to 4000 feet or more, and the same thing occurs, I believe, in the Green Mountains in Vermont. Judging then from my experience, it looks as though none of the vast multitude of Black-polls

passing through these states reach their breeding grounds in the far north by way of Hatley, unless possibly by keeping to the tops of the Bunker and Massawippi hills at an elevation of 1400 feet, which theory I am not inclined to favor at present, in the absence of any further published records of the appearance of the birds until we reach Montreal and Quebec, my friend, Mr. L. M. Terrill, informing me that he did not observe it at Bury, a village some thirty-five miles to the northeast of Hatley. What I think is far more likely to be the case, is that the birds passing through New Hampshire branch off at Lancaster or thereabouts as their most northern point, and pass up through central and eastern Maine to New Brunswick, Nova Scotia and the Gaspé Peninsula, from whence they cross to the Magdalene Islands, Anticosti and Labrador, whilst those from Vermont evidently take a westerly course probably through the northern portion of the state of New York, and thence across the St. Lawrence and through Ottawa to the north, but this line of migration is not nearly so well defined as that through Maine. Dionne speaks of it as a rare migrant in spring at Quebec, Wintle as an irregular spring migrant at Montreal, and says he has not met with it in autumn, whilst Terrill writes me that he meets with it there commonly in the fall, but irregularly in the spring. From this it looks as though the spring wave rarely reaches Quebec or Montreal, but in the fall some of the returning birds pass through these two places on their way south. This state of things seems to entirely favor my theory that Black-polls do not pass through Hatley or the eastern townships in the spring at all events, and as regards the fall when young of this species might be mistaken for young of the Bay-breasted Warbler, I have on several occasions when any doubt, existed, shot the birds, but they have always turned out to belong to the latter species. Taking Montreal and Quebec as a base line and Hatley as the apex, the territory inside this triangle is practically virgin ground, and awaits its quota of good observers to settle some of these interesting problems.

159. *Seiurus noveboracensis noveboracensis* (Gmelin). WATER-THRUSH.—Rare summer visitant, fairly common transient; May 19-28 (summer); August 26 to September 8. My first acquaintance with this species was on August 26, 1916, when one example only was seen and obtained. In the following spring two more were obtained in May and given to the Victoria Memorial Museum at Ottawa, and six others seen; (five of this latter number at Ayers Cliff) but in the fall only one was again noted the same as the previous year, thus making a total of ten examples for the two years. Mr. Greer of Hatley Centre tells me that on one occasion in summer he came across a parent bird feeding young near Massawippi Lake, and on this information I have ventured to include the bird as a summer visitant on rare occasions. It will be noticed that one half of my records were obtained at Ayers Cliff, which is in the immediate vicinity of the lake, and I quite think the species is more plentiful there owing to its damper surroundings than it is at Hatley.

160. *Anthus rubescens* (Tunstall). AMERICAN PIPIT.—Not com-

mon transient; September 22-26. On the morning of September 22, 1917, I had only crossed one field after leaving home, when I observed a strange bird on the fence rails, which I at once knew must either be a Pipit or a Wagtail from my experience of these species in the 'old country.' I secured the example and found it to be an American Pipit. At the report of the gun another fourteen got up and started to fly away, but returned almost at once on my whistling them, which enabled me to view them at close quarters. Two days later I saw another flock of eleven securing one, which with the other I presented to the Victoria Memorial Museum at Ottawa. On the last date given above I only saw one example.

161. *Troglodytes aëdon aëdon* (Vieillot). HOUSE WREN.—Rare transient; May 19; August 6 to September 22. In August of 1915 I got a fleeting glance of a wren which I took to be one of this species, but did not consider identification sufficiently good to include it in my 1911-1915 list. However in the following year from August 11-15, I got on intimate terms with one of these birds, and visited him every day between these dates. He generally commenced by scolding me well, but on two occasions ended up with a little song, but nothing I imagine to be compared with his spring achievement in this line. He also had a pretty way of basking in the sun with his breast pressed closely to the branch or log, when he would put one leg under his wing, and extend it to its fullest extent. On the above date in May, 1917, I saw just one example which I secured and gave it to the Victoria Memorial Museum at Ottawa. In the fall of the same year on August 6 and 10, I again saw an adult bird (practically in the same place each time), feed an immature well able to fly. Two other examples were seen, one on August 31, and the other on September 22. The above notes should prove interesting in view of the rareness of this wren in eastern Quebec, out of which no doubt it has been driven by the advent of the English Sparrow, the same as it was in Maine.

162. *Cistothorus stellaris* (Naumann). SHORT-BILLED MARSH WREN.—Rare transient. May 21. On the above date in 1917, I saw one of these birds near a small stream running through the center of a damp meadow much overgrown with long rank tussocky grass and some alder bushes, and although I had my gun with me at the time, I must admit I was so surprised at seeing a new wren and one decidedly rare for these parts, that I failed to fire when I had the chance, and the bird slipped away amongst the long grass, and I was unable to find it again. In spite of my inability to produce the example I give the record as I know I neither confused it with a Winter or a House Wren, both of which I am familiar with, and whilst the general ochraceous buffy appearance of the bird with its short bill was still fresh in my mind, I went directly home (as the meadow was not far off) and after looking up plate No. 102 in Eaton's 'Birds of New York' 1914, I had no misgivings in my own mind that what I had seen was one of the above species.

163. *Penthestes hudsonicus nigricans* (Chas. W. Townsend).

LABRADOR CHICKADEE.—Rare transient; May 14–30, September 3–21, (October 10 to November 12). Time was when I could not have told *nigricans* from *littoralis* in the field, but that is past history now, and probably I have had as much experience in the field with the former as any one, so that when a couple of Hudsonian Chickadees came into sight today, October 10, 1917, at close quarters, I had no difficulty in seeing that they were *littoralis* and not *nigricans*, not so much from the fact that their backs were brown instead of dusky, the caps undifferentiated, and the sides of a strong brown tint, but from their behavior and the tone of their voice, which was entirely different to that of any *nigricans* I have so far come across. The same wheezy note was certainly there but it was stronger and more insistent than in *nigricans*, which in my experience is a very feeble wheeze, and as regards their behavior they came close down to me of their own accord, and when whistled, the same as *atricapillus* will, whereas I have never been able to induce *nigricans* to do so, in fact it has always been difficult to get a shot at these latter owing to their nervous and restless state. In my 'Birds of Hatley' (Auk, Vol. XXXIII, 1916, p. 184) I record two Acadian Chickadees (*littoralis*) which from my late experience I can now assert to be correctly named, and as regards the two Hudsonian Chickadees (*Penthestes hudsonicus* subsp.?) (Auk, Vol. XXXIV, 1917, pp. 215, 217). I have no hesitation in saying they were *nigricans* but as will be seen, the dates, October 10 to November 12, have been inserted in brackets. Returning to *nigricans* I first became acquainted with the species on May 14, 1917, when two examples were secured, and sent in the flesh to Dr. Townsend for verification. Two days later another was obtained and also sent to the same authority. These three proved to be adults, two males and one female. On the twenty-first three more were obtained and one on the thirtieth, which were all sent in the flesh and given to the Victoria Memorial Museum at Ottawa (proving to be two males and two females, see 'The Auk,' Vol. 34, 1917, pp. 486–487) which institution at the time possessed only one example, and that not a Canadian taken one. No more were seen until the very early and no doubt record "fall" date of September 3, when two were obtained and sent to Dr. Townsend, but owing to a delay in the mails, they were unfortunately not in a fit state to preserve on arrival. Another male was secured on the thirteenth and again given to the Museum at Ottawa. Altogether from May 14 to September 21, sixteen examples were seen, and without exception, as already stated, they were restless and difficult to approach, especially amongst the firs which they always frequented either alone, or in the company of flocks of Golden and Ruby-crowned Kinglets, generally the former.

SYNOPSIS OF PRINCIPAL EVENTS. YEARS 1916-1917.

1916.

Pine Grosbeaks again made their appearance after an absence of three years. Evening Grosbeaks also seen. Black-throated Blue and Black-throated Green Warblers found breeding. Cedar Waxwings unusually plentiful and nesting in small communities. Goldfinches also plentiful and seen for the first time in every month of the year. Red-eyed Vireos more numerous again, than during the past three years, other vireos rare or absent.

Kingbirds very scarce. Olive-backed Thrush found breeding for the second time. Purple Finches more numerous than ever before. Sharp-shinned Hawk wintered at Hatley. Bronzed Grackles first invaded Hatley Village and nested there. Obtained a fine example of Wilson's Warbler, second one only seen in seven years. Found Myrtle and Black-throated Blue Warblers taking sap from sapsucker holes, and possibly the Cape May as well. White-winged Crossbills seen for the first time, and a female obtained on the early date of August 31. Nashville Warbler and Water-Thrush also seen for the first time. Black-capped Chickadees and White-breasted Nuthatches more plentiful than usual.

1917.

Evening and Pine Grosbeaks again present, the flocks consisting of a much larger proportion of full plumaged males than usual. Early date for arrival of Savannah Sparrow, March 30. One example of Short-billed Marsh Wren seen May 21. White-crowned Sparrow unusually numerous. Nashville and Black-burnian Warblers found breeding for the first time, also Meadow-lark, Red-headed Woodpecker and Marsh Hawk, the latter on May 10, an early date for this species. Obtained first spring records for Cape May and Nashville Warblers, also Wilson's Snipe, and first fall records for Woodcock and Yellow Palm Warbler, the first being the second bird only (Woodcock) seen in seven years. Black-poll (one only) and Tennessee Warblers (four) seen for the

first time. Pair of Indigo Buntings seen on June 4, the second only in seven years. Migrant Shrikes spreading and three pairs located breeding as against one only in previous years. Late date for departure of Cedar Waxwings, October 9.

Obtained a small series of Dr. Townsend's new subspecies, the Labrador Chickadee, both in spring and fall, the early date of September 3 being no doubt a record one for the latter season. Two Acadian Chickadees seen on October 11, making four only for seven years. Northern Shrikes somewhat numerous at the end of October. One Yellow Palm Warbler seen on November 8, a late date, which remark also applies to a Crow seen on December 6. Two Brünnich's Murres shot on the Massawippi river on December 10, after an easterly gale. Months of November and December noticeable for the almost entire absence of winter birds.

For the convenience of those wishing to see at a glance, exactly what birds may be found at Hatley, I have prepared the following list, marking with an asterisk the seventy-seven species, whose nests, eggs or young have actually been found, and with a dagger the fifteen, some of which are known, and others believed to breed more or less regularly, but whose nests, eggs or young have so far escaped detection. It may also be mentioned that of this list thirteen species are Residents, seventy-four Summer Visitants, sixty-four Transient Visitants, whilst the balance or remaining twelve are Winter Visitants.

Pied-billed Grebe	Canada Goose
Loon	American Bittern*
Brünnich's Murre	Great Blue Heron
Kittiwake	Little Green Heron
Herring Gull	Black-crowned Night Heron
American Merganser	Virginia Rail
Red-breasted Merganser	Sora*
Hooded Merganser	American Woodcock
Black Duck	Wilson's Snipe
Green-winged Teal	Pectoral Sandpiper
Blue-winged Teal	Least Sandpiper
Wood Duck	Semipalmated Sandpiper
American Golden-eye	Greater Yellow-legs
American Scoter	Yellow-legs
Snow Goose	Solitary Sandpiper

Bartramian Sandpiper*	Prairie Horned Lark*
Spotted Sandpiper*	Magpie
Killdeer	Blue Jay*
Semipalmated Plover	Canada Jay
Canada Spruce Grouse†	Crow*
Canada Ruffed Grouse*	Bobolink*
Turkey Vulture	Cowbird*
Marsh Hawk*	Red-winged Blackbird*
Sharp-shinned Hawk†	Meadowlark*
Goshawk	Baltimore Oriole*
Red-tailed Hawk	Rusty Blackbird
Red-shouldered Hawk*	Bronzed Grackle*
Bald Eagle	Evening Grosbeak
Pigeon Hawk	Pine Grosbeak
Sparrow Hawk*	Purple Finch†
Osprey	English Sparrow*
Long-eared Owl*	American Crossbill
Short-eared Owl	White-winged Crossbill
Barred Owl†	Redpoll
Great Grey Owl	Goldfinch*
Richardson's Owl	Pine Siskin*
Saw-whet Owl†	Snow Bunting
Screech Owl	Vesper Sparrow*
Great Horned Owl†	Savannah Sparrow*
Snowy Owl	White-crowned Sparrow
Hawk Owl	White-throated Sparrow*
Black-billed Cuckoo*	Tree Sparrow
Belted Kingfisher*	Chipping Sparrow*
Hairy Woodpecker*	Slate-colored Junco*
Downy Woodpecker*	Song Sparrow*
Arctic Three-toed Woodpecker	Swamp Sparrow*
Yellow-bellied Sapsucker*	Fox Sparrow
Northern Pileated Woodpecker†	Rose-breasted Grosbeak*
Red-headed Woodpecker*	Indigo Bunting*
Northern Flicker*	Scarlet Tanager*
Whip-poor-will†	Purple Martin
Nighthawk	Cliff Swallow*
Chimney Swift*	Barn Swallow*
Ruby-throated Hummingbird†	Tree Swallow*
Kingbird*	Bank Swallow*
Crested Flycatcher*	Cedar Waxwing*
Phoebe*	Northern Shrike
Wood Pewee†	Migrant Shrike*
Yellow-bellied Flycatcher†	Red-eyed Vireo*
Alder Flycatcher*	Warbling Vireo*
Least Flycatcher*	Yellow-throated Vireo*

Blue-headed Vireo*	Canada Warbler*
Black and White Warbler*	Redstart*
Nashville Warbler*	American Pipit
Tennessee Warbler	Catbird*
Northern Parula Warbler*	House Wren
Cape May Warbler	Winter Wren*
Yellow Warbler*	Short-billed Marsh Wren
Black-throated Blue Warbler*	Brown Creeper†
Myrtle Warbler*	White-breasted Nuthatch†
Magnolia Warbler*	Red-breasted Nuthatch†
Chestnut-sided Warbler*	Chickadee*
Bay-breasted Warbler	Acadian Chickadee†
Black-poll Warbler	Labrador Chickadee
Blackburnian Warbler*	Golden-crowned Kinglet
Black-throated Green Warbler*	Ruby-crowned Kinglet
Pine Warbler	Veery*
Yellow Palm Warbler	Olive-backed Thrush*
Ovenbird*	Hermit Thrush*
Water-Thrush*	Robin*
Maryland Yellow-throat*	Bluebird*
Wilson's Warbler	(163 species)

HOME LIFE OF THE VESPER SPARROW AND THE HERMIT THRUSH.

BY E. M. AND W. A. PERRY.¹

ONE summer at Douglas Lake, Michigan, the Biological Station of the University of Michigan, we had an opportunity of studying the nesting habits of the Vesper Sparrow and the Hermit Thrush. The results of my observations are presented below.

I.

THE VESPER SPARROW.

One usually associates the Vesper Sparrow with large, grassy fields and dusty roadsides. The region in which I made my study

¹ Observations were made by E. M. Perry, article was prepared by W. A. Perry.

was of a very different character. It had been cleared of the original forest of pines, and further denuded by forest fires. The ground was still strewn with charred logs and stumps. Here and there a tall, charred skeleton of a tree trunk towered high in the air. The living vegetation consisted of scattered tufts of blue grass; shrubby growths of aspen, huckleberry, sumac, and bracken, and a few taller trees of oak, aspen, and maple. One of the two nests that I observed was quite well hidden by a small blackberry bush, some tall blue grass, and a few brackens; the other was under the drooping branches of a sumac.

Previous to the hatching, I used to visit the nests every day. They were simple structures consisting of shallow basins in the earth, made by the sparrows themselves; a coarse lining of the stems of bracken; and a softer lining of blue grass. Four white, brown-blotched eggs were laid in each nest. Only three of the four eggs hatched in each.

As soon as the first bird began to peck its way out of the shell, I devoted from six to nine hours a day for eight days to observation. I used as a point of vantage a blind, or tent, four feet square, pitched within about thirty inches of the nests under observation. I had cut a slit three or four inches long in the side toward the nests for an observation window, and another, lower down, for the protrusion of the camera lens. I had to avoid making the slightest noise or any movement across the window.

In order to determine the duties of the different sexes, I tried to distinguish the male from the female; but that is not an easy matter when the plumages are practically identical. After a day or two, however, I found that I could differentiate the parents by the shade of the back feathers, or the loss of such prominent ones as the white outer tail feathers. I am not sure that my distinction of the sexes was correct, but I give the results of my observation according to that distinction.

From the first the sparrows were clean nest-keepers. Their work began as soon as the young cast aside the shells. These were not allowed to litter the nest, nor were they scattered carelessly about. They were simply eaten by the parents while at the nest. One parent did take a shell some few feet away from the nest before eating it. The shell seemed brittle and broke into many fine bits. These were all carefully picked up. Ants were numerous and

were always crawling through the lining and into the nest. I often used to see the parents perched on the nest, with most of the upper part of the body hidden as they searched through the wall for retreating ants. Frequently the wind blew bits of leaves or grass into the nest. These were never allowed to remain. The excreta of the young never soiled the home; it was eaten by the parent as soon as the nestling evacuated it from the cloaca. Consequently the nest looked as clean when the family left as it did the first day of its use.

Another duty of the sparrow parents was that of brooding. The greater amount of this was done by the one I took to be the female. In the second nest neither parent did much brooding, but the male did none. During the hottest part of the day the female, her mouth agape, often stood up in the nest with wings outspread to keep the heat of the sun from the nestlings. While I was observing the first nest, there was a heavy, driving rain storm that lasted nearly two hours. The female did duty then. She brooded facing the storm, the water running off her back in rivulets. She was a drenched bird when the storm decreased and the dry male came to relieve her. The nestlings, however, were perfectly dry.

A third duty was that of feeding the young. The parents were kept busy bringing food on an average of every twenty minutes for the first few days. This interval decreased to ten by the fifth day, and then slightly increased to the seventh day. In the first nest the ratio of feeding was 11:7 in favor of the female, in the second, it was 2:1. The parents brought grasshoppers, crickets, katydids, sawfly larvæ, and some hairy larvæ I could not identify. I rather thought they selected small specimens when the birds were small. At times, however, they brought such large grasshoppers, with legs and wings missing, that the young could swallow them only with much struggling. The parent bird always placed the food well down the throat of the nestling by inserting its own mandible into the mouth. Often the nestling still held its mouth agape after the food had been placed in it and did not seem able to swallow for a few seconds. The mother of one of the families had a difficult task in getting any of the nestlings to swallow a large brown caterpillar. She placed it into mouth after mouth and then tried all

over again. The larva by this time was torn and dripping. One of the nestlings findly swallowed it in this condition.

A fourth duty had to do with guarding the nest. In order to keep the location of the nest a secret, the parents rarely flew directly to the nest or away from it. Even when they were frightened, they usually took time to hop away a short distance before flying. They approached the nest by comparatively definite routes. They would alight some ten or fifteen feet away. Then they would hop up slowly, stopping now and then on some observation point, such as a stump or fallen log, look around, call "Neen, neen," and then hop up on one particular side of the nest's rim.

All the activities of the parents seemed to be part of a definite routine. This call, "Neen, neen," seemed to be a signal call. If one of the pair was at the nest when the other called, it hurriedly left. Both parents were never found at the nest at the same time during my observation. I have even seen a parent engaged in feeding, leave without completing the task when this call was given by the other. Each parent waited after feeding the nestling for it to mite, and then seizing the excreta, would either swallow it or leave with it in the mandibles. After feeding the nestlings, the parent sometimes brooded until compelled to leave at the call, "Neen, neen." There was no variation in their routine except in the intervals between feedings, a decrease in the amount of time spent in brooding, and the breaking of the schedule caused by storms or other interruptions beyond their control.

One day in the first nest, the brooding female flew directly from the nest. This was such a pronounced breaking of custom that I craned my neck to see what exceptional event could warrant the act. I saw her a few feet away trailing her wings on the ground as if injured. A short distance from her was a garter snake. I could not wait to see the outcome of what seemed like a pending tragedy, but killed the enemy immediately. Realizing that my observations might come to a premature end if another snake should be in search of a dinner while I was absent, I placed around the nest a circular fence of close-meshed wire 18 inches high and about 10 feet in diameter. I then thought that this would keep out snakes. I now doubt its efficiency.

Soon after I had placed this fence around the nest, the male

approached in the usual manner of hopping toward the nest. When he reached the fence, he ran around it looking for an opening. He had to do this several times before he felt positive that he could not get through. He then became alarmed, and disappeared from my view for about twenty-four hours. The female was more determined than the male. It took her two hours before she felt convinced that there was no opening. She then flew over. My day was drawing to an end. So I picked up my camera, pocketed my note book, and went home, feeling confident that I had provided against the danger of further snake enemies, and that the female now knew how to reach her young.

The next morning when I came to the nest, I found what I feared was a castastrophe. There lay three cold, limp, apparently lifeless birds. I cast aside the fence and entered my tent, heartsick. The nestlings had been starved and unbrooded all the chill night through. In a little while the female came to the nest and in her efficient manner proceeded with the only sane treatment possible. She brooded in a quiet, untiring way for four uninterrupted hours. Finally hunger drove her forth. Then, still feeling guilty, I looked in and found all three nestlings able to move about. By noon they were again keeping the parent busy bringing food, and since the male did not appear all day, it was a double task for her.

The second family also had a snake visitor that I had to kill. There seems little doubt that many young birds, especially those that live in nests on the ground provide food for snakes. Even after they leave the nest, they are likely to be attacked. I visited the first nest the day after the nestlings left. I had about decided that there was nothing to see but the chirping parents in the nearby trees, when I heard a screaming "Zee, zee," and saw the parents flying about in distress. Hurrying out, I found a nestling held in a snake's jaw. The snake wriggled away, and the bird lost itself in the grass. I felt that the snake would come back. So I waited until I again heard the call. This time I succeeded in killing the snake and in capturing the bird. It had a jagged tear on its thigh where the snake's teeth had held it. I put it in the nest, but it would not stay.

The objects of all this parental care and of much of my interest were hatched blind and entirely naked, with the exception of a row of short down feathers extending from the crown of the head to the

tail. They were able from the first to raise their large heads on their long, wobbly necks, and open their mouths for food. In fact, they seemed able to do this before the down had scarcely dried. They soon became rather active, ill-mannered, aggressive nestlings, squabbling over their food. Their bodies began to be marked with distinct feather tracts. On the third day the wing pins had broken through the skin. Their eyes began to open about this time, and they could make a faint call. This became a loud "zee, zee" by the sixth day. They no longer remained quietly huddled in the bottom of the nest, but began to assume a definite position, with their heads resting on the rims of the nest, their breasts against the sides, and their claws firmly clasped in the lining. When they raised their heads and opened their mouths, they looked like a bowl of queer flowers. Now and then they stood up and flapped their wings. When they were six days old, they began to preen their bursting feathers. This they did by seizing each feather at the base, and drawing the mandibles over it toward the apex. This helped to remove the dried sheath.

In order to estimate the rapidity of their growth, I weighed them every day. Since they soon became too active to keep on the scale pan, I made a cheese cloth bag to put them in while I weighed them. To distinguish one from another, I marked them with paint on different parts of the body. Having the birds marked also gave me an opportunity of determining if the parents fed them impartially. I decided that they fed indiscriminately. The nestling stretching out its neck the longest, received the most food. In spite of this, however, the following table shows an approximately equal increase in the weight of each of the three.

TABLE I.

SHOWING WEIGHT IN GRAMS OF NESTLINGS FROM DAY TO DAY.

Date	July 19	July 20	July 21	July 22
Bird I	2.92	4.82	7.48	9.07
Bird II	2.85	4.76	7.23	8.87
Bird III	2.66	4.23	5.83	8.48
Number of times food was brought to nest	16	23	27	35
Weather	Warm Clear	Cool Cloudy	Cool Cloudy	Clear Cool

Table I continued.

Date	July 23	July 24	July 25	July 26
Bird I	13.41	15.62	16.98	17.30
Bird II	13.22	14.97	16.01	left nest
Bird III	12.23	14.45	16.88	16.88
Number of times food was brought to nest	50	46	29	
Weather	Rainy Rained in A.M.	Rainy	Cloudy Threatening	Clear

When the nestlings were eight days old, although they were not well feathered, the parents coaxed them from the nest. This they accomplished by calling "Chirp, chirp" near the nest, sometimes with and sometimes without food in their mandibles, and then waiting until a nestling hopped out. As soon as the nestling approached, they retreated a few feet and then again waited. If the nestling seemed disinclined to continue following, the parents went back near it and again called "Chirp." The nestling would probably start to follow. By a continuation of this process the parents of both nests enticed the young from the homes into the surrounding grass and shrubs while they were still unable to fly, and their only method of locomotion consisted of clumsy hopping. I could now see why the young had begun to assume the position I have before mentioned. This is the preparatory position for climbing out of the nest. Since the young seemed so helpless, I several times put them back into the nest. They only screamed when I touched them and again hopped out, ready for the adventures of the world.

II.

THE HERMIT THRUSH.

The nest of the Hermit Thrush was about a mile from those of the Vesper Sparrows. It was on much lower ground, near a bog. The vegetation was similar, except that the trees were much taller. It was placed in a shallow depression of the sandy soil, at the bases of a dwarf honeysuckle and several tall brackens, and extended above the surface of the ground about an inch and a half. It

was much more neatly constructed than were the sparrows' nests. The same building materials were used bracken stems and blue, grass, with the addition of a lining of pine needles. A few oak leaves on the margin helped to hide it from view, since the surrounding surface, too, was strewn with oak leaves. The nest contained four greenish blue eggs when I first discovered it.

As soon as the eggs began to hatch, I had the tent pitched and began to study this family as I had studied the sparrows. My first discovery was that I had a much shyer bird with which to deal. I sat through the first day, waiting in vain for the parents to take care of their young. Neither one came to the nest from morning till noon, nor from noon until 5 P. M. All I saw for my watching was four weak heads raised every now and then on unsteady necks, and four yellow, opened mouths close unfed. Fearing that the parents might desert the nest, I left at 5 P. M. Toward evening I returned. The nestlings were cold, and had not been fed or brooded, I believe, since I left. I had the blind removed. Since the young were warm and in good condition the next morning, I had the blind pitched a second time. This time I cut a few leafy branches and placed them over the window end, to cover up any perceptible movement across the slit. I accomplished little more the second day than I had on the first. The parents approached the nest with food, but never became quite courageous enough to enter the home. On the third day I found that the parents had decided to conduct the affairs of their household regardless of the introduction of a staring white tent right beside their nest.

I could not distinguish the parents from each other until the fifth day. I then found that one had a much grayer back, lores, and mid-tail feathers than the other. I called this the male.

Their manner of conducting their home duties was so similar to that of the sparrows that they might well have been the same family. For a while I felt that they were not such clean nest-keepers. One of the nestlings had died the second day from a rupture near the anal opening, and was left in the nest until it swarmed with ants that came to feed upon it. On the fifth day, while I was away, it and all the excrement that had been allowed to accumulate were removed. No doubt this apparent laxity was due to the birds being disturbed. From then on, at any rate, everything was kept clean. The Hermit Thrushes removed the

excreta, ants and egg-shells just as the sparrows did. The female did most of the brooding. Neither parent did much. The female also did the greater part of the feeding. The food selected by the parents for the young consisted entirely of insects either in the larval or adult state. Katydids, grasshoppers, crickets, sawfly larvæ, robber flies, a few hairy caterpillars, and a moth or two made up their food. I noticed such a variation in the gain in weight of the different nestlings that I marked them on the head with paint in such a way as to distinguish one from the other, so that I could determine whether the parents fed impartially. Table II shows the number of times, from August 7 until August 9, that each bird was fed.

TABLE II.

FEEDING PERIOD.

Each figure in the table gives number of feedings for each period.

Period of Observation	August 7 1: 20-3: 00	August 8 7: 05-11: 15	August 8 12: 15-3: 0	August 9 7: 05-10: 30	Total
Bird I	4	11	4	5	24
Bird II	5	12	2	10	29
Bird III	3	9	4	3	19
Total	12	32	10	18	72

Each figure in the table gives number of feedings for each period. The parents fed indiscriminately. Bird III did not receive as many feedings as the others and therefore lost a greater amount in weight. Bird II received the most feedings and his weight from August 7 to 9 shows a gradual increase. Table III shows the share each parent took in caring for the young in so far as I was able to distinguish them. I could not distinguish them until the fifth day.

Their method of approaching and leaving their nest was like that of the sparrows. The first few days neither parent gave a call when approaching, and it was only by close watching that I could tell that they had visited the nest. Often, however, they gave a deep, throaty "Cluck" when on the nest's rim. Soon they began to give a robin like "Chirp" or a "Neink, neink" call, when some distance from the nest. This was taken by the bird on the nest as a signal to leave. One day the male was having difficulty inducing

TABLE III.

DETAILS OF FEEDING, BROODING AND OBSERVATION.

Age of Young	July 30 1 day	July 31 2 days	Aug. 1 3 days	Aug. 2 4 days	Aug. 3 5 days	Aug. 4 6 days	Aug. 5 7 days	Aug. 6 8 days	Aug. 7 9 days	Aug. 8 10 days	Aug. 9 11 days	Total
Fed by Female in A.M.	0	0	*7(♂ & ♀)	*12(♂ & ♀)	13	14	17	5	17	22	13	101
Fed by Female in P.M.	0	*4(♂ & ♀)	*4(♂ & ♀)	*8(♂ & ♀)	10	12	7	11	5	6		51
Fed by Male in A.M.	0	0	0	0	6	6	5	4	9	7	4	41
Fed by Male in P.M.	0	0	0	0	2	2	6	4	4	2	0	20
Brooded by Female in A.M.	0	0	*2 hrs.	*1 hr.	1 hr.	1	0	0	0	0	0	0
			11 min.	5 min.	40 min.							
Brooded by Female in P.M.	0	0	*1 hr.	*1 hr.	55 min.	0	0	0	0	0	0	0
			7 min.	23 min.	0	0	0	0	0	0	0	0
Brooded by Male in A.M.	0	0	0	0	0	0	0	0	0	0	0	0
Brooded by Male in P.M.	0	0	0	0	0	0	0	0	0	0	0	0
Rate of Feeding in A.M.	0	0	37 min.	20 min.	13 min.	12 min.	11 min.	28 min.	9 min.	8 min.	9 min.	
			51½ sec.	40 sec.	35 sec.	36 sec.	35½ sec.	13½ sec.	36½ sec.	47½ sec.	31½ sec.	
Rate of Feeding in P.M.	0	38 min.	42 min.	21 min.	14 min.	9 min.	12 min.	11 min.	18 min.	20 min.		
		45 sec.	30 sec.	20 sec.	10 sec.	39 sec.	4 sec.	0 sec.	53½ sec.	37½ sec.		
Period of Observation in A.M.	7.30-	7.12-	7.00-	7.15-	7.15-	7.00-	7.00-11.15	7.06-	7.15-	7.05-11.15	7.05-	
	11.20	11.20	11.25	11.25	11.20	11.15	12.15-3.00	11.20	11.25	12.15-3.00	10.39	
Period of Observation in P.M.	12.10-	12.10-	12.10-	*12.10-	12.10-	12.30	12.15-3.00	12.15-	12.10-	12.15-3.00		
	2.45	2.45	3.00	3.00	3.00	2.45	6 hrs.	3.00	3.00			
Total Time Observed	6 hrs.	6 hrs.	7 hrs.	7 hrs.	6 hrs.	6 hrs.	6 hrs.	6 hrs.	7 hrs.	6 hrs.	3 hrs.	72 hrs.
Rate of Feeding during Observation	25 min.	43 min.	15 min.	min. 21	55 min.	30 min.	55 min.	59 min.	min. 12	min. 10	min. 12	13 min.

* I had not distinguished the male from the female during the first four days of observation.

any of the nestlings to swallow a green hairy larva, and in the midst of his difficulty the female's call of "neink, neink" sounded. The male picked up the larva that had fallen from his mouth, and hurried away, just as the female reached the nest. After she had left, he came back with the same caterpillar he had taken away. I noted only one exception to this rule that the parent at the nest leave at the approach of the other. This time the male reached the nest carrying a large katydid in his mandibles. He spread out his wings and raised his crown feathers as if in anger, and pecked at the brooding female. She took the katydid from his mandibles and left by the usual route.

I thought the young Hermit Thrushes a little handsomer than the sparrow nestlings. They had long, black, downy feathers on the dorsal tract; yellow skins; and orange linings to their mouths. They began to make a faint call, "Tsit" on the second day. By the time they were four days old, the wing pins had pierced the skin, and all the other tracts on the body were pronounced. Their eyes began to open on the fifth day. They began to preen their feathers on the ninth day. By the eleventh day they were much mottled birds. The feathers were fuscous, and ochraceous buff, on the upper parts; their tail feathers all buff; the wing feathers buff on one vane, and ochraceous on the others; the throat and breast were streaked with black; and the under parts were creamy white. As they grew older, they were just as greedy as their coarser cousins, the sparrows, and screamed and stretched out their bodies toward the parent bringing the food. Table IV shows the variation in their weights from day to day.

TABLE IV.

WEIGHT OF YOUNG IN GRAMS.

Date	July 30	July 31	Aug. 1	Aug. 2	Aug. 3	Aug. 4
Bird I	4.99	4.80	6.35	9.72	14.52	16.25
Bird II	5.18	4.34	6.80	9.53	14.26	16.31
Bird III	5.83	5.57	8.42	10.72	15.81	18.45
Bird IV	4.7	4.00	Died			

Date	Aug. 5	Aug. 6	Aug. 7	Aug. 8	Aug. 9
Bird I	21.63	23.18	25.95	23.62	23.62
Bird II	19.04	21.43	22.92	26.21	26.59
Bird III	20.58	23.28	29.77	25.56	23.94

Although it was raining on the twelfth day, the nestlings began to climb out of their nest. The parents encouragingly chirped to them, a few feet away. I put the first one back. Although I had handled it every day while weighing it, now it screamed with fear. The parents forgot their timidity and flew down angrily close to my head, making a queer clicking noise. It was useless to try to prevent these little wanderers from leaving the nest. Although weather conditions were unfavorable, and they could not fly, they had to leave. The nest cycle of twelve days had been completed.

THE DISTRIBUTION OF NUTTALL'S SPARROW IN CALIFORNIA.

BY CARL L. HUBBS.

DURING the months of May, June, and July, 1916, the writer was engaged in a collecting trip along the central California coast. During the trip observations were repeatedly made on *Zonotrichia leucophrys nuttalli*, as it soon became apparent that the peculiarly restricted distribution of this sparrow had not received the full attention that its significance deserves. These detailed records are briefly presented, as they are used to establish and justify the generalizations that follow.

This White-crowned Sparrow breeds in the humid region along the Pacific Coast, occupying an area south of that inhabited by *Z. l. gambeli*. The latter subspecies migrates southward to California in large numbers, whereas *Z. l. nuttalli* undertakes no extensive latitudinal migration, merely occupying a slightly wider range during the winter months than in the breeding season.

DEFINITE RECORDS.—Dr. Grinnell has recorded the status of *Zonotrichia leucophrys nuttalli* in California as follows: "Common resident of the narrow humid coast belts";¹ "breeds south from Humboldt Bay through the San Francisco and Monterey Bay

¹ Grinnell, *Pacific Coast Avifauna*, 3, 1902, p. 52.

regions, regularly at least to Port Hartford . . . sparingly to Santa Barbara. Occurs scatteringly in winter beyond these limits, interiorly to McCloud River" and the San Joaquin Valley, "and southerly to Los Angeles" and vicinity; there has also been noted "a regular local migration within Marin County from the seacoast, where it breeds abundantly, to the interior, as at San Geronimo, where it winters plentifully."¹ It also winters abundantly in its breeding zone, for instance near Monterey.

Z. l. nuttalli occurs on the terrace between the hills of the San Francisco Peninsula and the sea. Near Monterey it bred abundantly in the tree lupines about Point Pinos before the improvement of this area; it entered the pine forests only in the open places near their coastwise margins. Along the southern shores of Monterey County the mountains of the Coast Range rise precipitously from the sea,—here our sparrow is "abundant in the narrow belt of yellow lupine (*Lupinus arboreus*) which lies along the coast from Monterey to San Carpojo [in northernmost San Louis Obispo County]. Also found as far inland as the blue lupine extends, which is sometimes two or three miles up the canyons on the shady side. Found nowhere else."² At one point along this rugged coast there is a terrace, about a half mile wide, between the cliffs and the mountains; this terrace is called "Pacific Valley," because it is the only level land in the region. A post office called Gorda is situated here, and at this secluded place the writer had the good fortune to observe Nuttall's Sparrow in the height of its breeding season, when its pleasant little song added life to the rough shore line. Although time did not permit searching for them, a number of fresh nests were stumbled onto at the edge of the cliffs: May 17, one nest with three, and one with two eggs, both placed between one and two feet from the ground in thick clumps of sage (*Artemisia californica*); May 18, one nest with two eggs, and another with two newly hatched young and one egg, both placed lower than two feet in sage; lastly a nest with two eggs, located two feet high in a blue lupine. This sparrow was entirely absent from the slope of the adjacent mountains, even at their bases, whether timbered or not (May 19).

¹ Grinnell, *ibid.*, 11, 1915, p. 117.

² Jenkins, *Condor*, 8, 1906, p. 128.

Further observations were made on this White-crowned Sparrow south of Monterey County during the summer, and while no fresh nests were found, it was abundant in all suitable localities southward to Point Conception. That the species was actually within its breeding range wherever found is evident from the following facts. The records were all taken before the end of July, and it is doubtful if migration *en masse* had occurred, especially as the subspecies makes no extensive migrations at all. The sparrow was not observed back of its breeding zone, nor on the narrow barriers which cut its range at several points, thus indicating that the breeding area was still being occupied. Finally at the various southern record stations to be given, both adults and half-grown young were seen; the bob-tailed young near Point Arguello, for instance, could hardly have moved far south along the wind swept coast. The following records then, are doubtless all within the breeding records of the subspecies.

Many individuals were seen in the sandy *Artemisia-Lupinus* belt about Piedras Blancas (May 31), but none were found near-by where the coast line is hilly (June 1-5), and none were seen in the pine forests near Cambria (May 29). Adults and half-grown birds were plentiful in the sand dune region just north of Morro Rock, but absent in the marshy area about the mouth of Morro Creek; at the town of Morro they were seen busily picking up scraps about the wharves and the huts of the fishermen, who are well acquainted with the bird; both adults and half-grown young were further abundantly observed on the sage covered plain skirting the east shore of Morro Bay, north of the marshy mouth of Los Osos Creek; they were not found on the adjacent hill-slopes (June 6-9).

The record-stations given in the preceding paragraph are in San Luis Obispo County. From the same county Willett¹ has published a note on this form. He wrote: "The commonest of the smaller land birds was the Nuttall Sparrow (*Zonotrichia leucophrys nuttalli*) which was breeding abundantly in the low brush from the water's edge to a mile or more back into the hills and canyons" (near Port Hartford). The writer observed the species in the same locality but did not find it in the hills (May 23-29). It was

¹ Condor, 11, 1909, p. 185.

apparently breeding along the edge of the cliffs between Port Hartford and Pismo (May 24). Both adults and half-grown were common at Oceano in the sandy regions, among the "forests" of blue lupine which attain here a height of 6 to 8 feet (June 11-12).

The hilly coast line about Point Sal (June 14-17) cuts in two the range of this bird, which appears again in the sand dunes a few miles further south, near the station Casmalia, Santa Barbara County (June 14). At Surf (Lompoc Junction), this sparrow is very common in the sand dunes and along the tracks of the railroad (June 18, 22); it is also common at Arguello station near Point Arguello where young with rectrices but half developed were seen (June 19-21); they are absent in such places as the high cliff "Espada" near Sudden.

About Point Conception *Z. l. nuttalli* is the commonest bird on the terrace between the hills and the wave swept cliffs; among those seen were a number of young of the year (July 13-17).

Just around Point Conception, the rolling hills, rising from the shore line to the mountains, form the terminal barrier to the distribution of the species. A single summer record has been published, based on observations made farther to the east or south. Bowles¹ noted two pairs near Santa Barbara: "One pair was feeding some bob-tailed young, evidently newly out of the nest, while the second pair showed every evidence of having a nest, though we failed to locate it." Had Mr. Bowles been near Point Conception, only forty miles east, he could have found not only two, but a hundred or more pairs. The writer spent a whole day (July 8) searching the various types of habitat between the shore and the foothills near Santa Barbara, and failed to find a single individual of the species. Its absence was still more striking along the coast near Goleta, for here its favorite breeding grounds, sandy soil overgrown with sage, and some (rather low) blue lupines, were wholly unfrequented by the sparrow, although scarcely more than thirty miles away it was abundant. Similar observations were made at numerous other points along the entire Channel coast south to middle Ventura County (June 23-July 12).

¹ Auk, 28, 1911, p. 174 (the only definite record the writer has found, based on observations south of Port Hartford, San Luis Obispo County).

SUMMARY AND CONCLUSION.—One may stand on Point Conception with Nuttall's Sparrows hopping about almost at his feet and look eastward along the Channel shore which harbors only rare stragglers of that bird; he may then turn northwest toward the splendid coast line which curves out to the headland of Point Arguello and see other abundantly populated habitats of the subspecies. Such sights impress one with the reality of the problems of distribution.

Zonotrichia leucophrys nuttalli, as its relatively dark colors and small size indicate, is an inhabitant of the humid coast in California. Many subspecies of birds with these common characters, as is well known, are confined to this belt. These other birds, however, have a range less restricted *transversely*, because they dwell in the forests¹ covering the coastwise hills and mountains, but more restricted *longitudinally*, for these forests of the coast area of the transition zone extend southward only to Cambria, the "City of the Pines" in northern San Louis Obispo County. Nuttall's Sparrow, on the other hand, shuns the forest and dwells along the wind-swept coast, nesting near the ground in low plants. It is usually commonest in sandy regions, and is closely associated with certain plants, particularly the large lupines and the sage-brush. In certain canyons the Sparrow is recorded as ranging inland during the breeding season as far as two or three miles, but we did not find it so far back; elsewhere it is confined to the coast line — the sand dunes and the first terrace above the cliffs — seldom occurring as far inland as a mile, and seldom higher than about three hundred feet above the sea. In brief, the distribution of *Z. l. nuttalli* in California may be regarded as practically linear.² It does not inhabit the hillsides, and its range is divided at many points where the waves cut directly into the hills. It also shuns all marshy ground, and is replaced here by Song Sparrows (*Melospiza melodia*, subsp.), the distribution of the two being notably complementary.

Though its range is restricted so closely, *Z. l. nuttalli* is uniformly the dominant bird in its particular habitat during its breeding

¹ The marsh-inhabiting land birds, such as the Song Sparrows, have also notably narrow ranges, but their nearest relatives, unlike those of Nuttall's Sparrow, are found in the adjacent highlands.

² In Washington, Nuttall's Sparrow has a much wider breeding range than in California.

season, at least along the California coast south of San Francisco. The species continues abundant along the coast south to Point Conception, where its range ends almost as abruptly as though this promontory were the 'Land's End' of California, instead of a sharp angle in a continued coast line.

The cause of this sudden termination of the distribution of Nuttall's Sparrow is not hard to postulate, when we recall that this subspecies has the characters of birds frequenting humid regions. The outer coast of California is swept by moisture laden winds, causing fogs to form continually during the summer on the hills. These winds blow hard across Point Conception almost uninterruptedly during the spring and summer months, but cease just around the Point, where the famously sunny climate of Santa Barbara is encountered, and there the range of *Zonotrichia l. nuttalli* is abruptly terminated.

THE LIMICOLÆ OF THE STATE OF WASHINGTON.

BY J. H. BOWLES.

APOLOGIES are seldom in good order when presenting a subject for scientific consideration, but the writer of this paper feels that something of the kind is necessary, perhaps, to justify him for offering the following more or less fragmentary notes. However, this most interesting family of birds has, of necessity, received so little attention in this northwestern corner of the United States that what little has been obtained may seem worthy of placing on record.

For one reason or another it has seemed best to omit practically all of the older records, the data here given being made up from either the personal observations of the writer, or from specimens concerning which he feels absolutely positive. Unless otherwise specified, all of these notes come from the west, or ocean side, of the Cascade Mountains, the counties of Chehalis, Clallam, Jefferson, and Pacific bordering on the Pacific Ocean itself. Tacoma, in

Pierce County, is situated on Commencement Bay, which is the beginning of Puget Sound farthest inland, while Seattle, in King County, is some thirty miles farther down the Sound. Dungeness is in Clallam, Gray's Harbor and Westport in Chehalis, with Willapa Harbor in Pacific County. East of the mountains is Kiona, in Benton County, and Brook Lake and Moses Lake in Douglas County, all three locations being of a sagebrush and alkaline character.

It will be of interest to state that the year 1913 was remarkable for the immense flight of shorebirds, both spring and fall, while in 1915 there were practically none at all.

I am greatly indebted to Mr. Carl Lien for all of the notes from Jefferson County and Westport. And also to Messrs. D. E. Brown, of Seattle, Ray Gamble, of Tacoma, G. G. Cantwell, of Puyallup, and F. R. Decker, of Kiona.

Phalaropus fulicarius. RED PHALAROPE.—One specimen taken by Mr. Clark P. Streator at Ilwaco, November 9, 1889. Mr. Carl Lien obtained a second specimen that killed itself by striking the light of the Destruction Island lighthouse, in Jefferson County, on May 8, 1916. These two, representing both spring and fall, are oddly enough the only records that I have for the state.

Lobipes lobatus. NORTHERN PHALAROPE.—A common fall migrant on Puget Sound. My earliest record is a flock of about fifty on July 8, 1900, that were swimming in the tide-rips off Point Defiance, a part of the city of Tacoma. It seemed a trifle out of place to see them feeding where the water is about 200 feet deep, so that their habit of "whirling" for food could not have been very productive of results. The latest specimen taken was by Mr. D. E. Brown at the Tacoma tideflats on August 19, 1913, though large flocks have been reported as late as early September. Mr. Lien reports, for spring records, numerous specimens that killed themselves on the Destruction Island light from April 27 to June 10, 1916, inclusive of both dates.

Steganopus tricolor. WILSON'S PHALAROPE.—Not rare as a summer resident on the borders of the alkaline lakes on the east side of the Cascades. The nest has, I think, never been found in the state, but it has been perfectly evident to myself and other observers that they must breed. No westside records.

Recurvirostra americana. AVOCET.—Formerly this handsome wader was doubtless a common breeder on the alkaline lakes east of the Cascades, but lack of adequate protection has almost exterminated them. Mr. W. Leon Dawson and myself found a small colony breeding at Moses Lake

on May 15, 1906. The only record for the west side is a single bird seen by Cantwell on June 2, 1916, at Dungeness.

Gallinago delicata. WILSON'S SNIPE.—Summer resident east of the Cascades, where it undoubtedly breeds. In the vicinity of Tacoma they arrive with great regularity during the second week of September, from which time they may be found in varying numbers until late in May, although it is my opinion that they do not nest.

Cold weather does not seem to bother them much. On January 1, 1916, when all the fresh water marshes were frozen over, large numbers of them gathered on the Tacoma Flats. In a fresh water marsh, where a running stream kept itself free from ice for its width of some ten feet, I watched a snipe hunting for food. When it reached the stream I was considerably surprised to see it enter the water without the least hesitation. It made good speed in the swim across, holding its head close to its chest, with about an inch of the tip of the bill under water. Thinking the bird must be wounded I was again surprised to see it, after a search of the opposite bank, take wing and fly with all characteristic agility.

Macrohamphus griseus scolopaceus. LONG-BILLED DOWITCHER.—Common during migrations west of the mountains, but less numerous in spring. Earliest fall record is July 13, 1913. Latest, September 31, 1917. Both records are from the Tacoma Flats. On May 11, 1913, Mr. Ray Gamble found them in small numbers at Willapa Harbor, where they were still present on May 18. No eastside records.

Tringa canutus. KNOT.—This species is probably a regular spring and fall migrant west of the mountains, and it seems likely that at least a few may winter. Mr. Lien gives the earliest fall record as August 21, 1917, when he saw a single bird in company with a flock of Black Turnstones and four Wandering Tatlers. Knots were still present up to October 26, when he sent in his notes for this paper. Mr. Cantwell saw a Knot at Dungeness on February 25, 1915.

During the spring migration they are at times extremely numerous. This was especially noticeable during the spring of 1913, when Gamble visited the flats at Willapa Harbor. Mr. Gamble's first notes in that section were made on May 11, 1913, at which time he found the Knots literally in thousands, bringing home an amply sufficient number in proof of his statement. On May 18 at the same place they were becoming scarcer, but were still in considerable numbers. Mr. D. E. Brown visited the same locality on May 16, 1914, and found them to be again fairly numerous. Mr. Lien records them on May 6, 1916.

Arquatella maritima couesi. ALEUTIAN SANDPIPER.—Records for this sandpiper in the state are comparatively rare, though it seems not unlikely that the birds may occur more often than is generally supposed. Personally, I have never seen the species alive, but Cantwell, who has taken specimens, writes me concerning them as follows:—"The Aleutian Sandpipers about which you enquire were noted at Dungeness from the 10th to the 18th of March, 1916, both on the Lighthouse Spit reservation and

on the tide flats opposite town. There were about twenty individuals, in small bunches of three to six, associated with other sandpipers. When flushed they invariably travelled together. In the middle of February the year previous there were none of these birds about at this point, nor on November 22 to 28 of 1916. Lien records another specimen, a male, collected in Jefferson County on the ocean shore on January 8, 1917.

Pisobia maculata. PECTORAL SANDPIPER.—A tolerably regular and sometimes common fall migrant to the tideflats and freshwater marshes in the vicinity of Tacoma. I have no spring records. The earliest record is of one taken August 30, 1913, the latest one taken September 29, 1896. I have never seen them associating with the other sandpipers, always seeming to keep by themselves, but I have several times flushed this species and the Wilson's Snipe only a few feet apart in the same marsh. However, I am inclined to think that this was accident rather than design of the birds.

Pisobia bairdi. BAIRD'S SANDPIPER.—The only records that I have for this species were made by Mr. Stanton Warburton, Jr., and myself during the fall of 1916 on the Tacoma Flats. The first specimen taken was a female on July 26, from which date they were to be found at almost any time up to September 5, when the last was collected. They were found in singles, pairs, or trios, most often associating with the Semipalmated Plover (*Ægialitis semipalmata*) when any were to be found. When flying with a company of the other small sandpipers they would separate as soon as the flock alighted to feed, the Baird's going to comparatively dry ground for their food while the others waded about in the water and at the water's edge. They could not have been called common, but from one to three or four were to be found on almost any day.

Pisobia minutilla. LEAST SANDPIPER.—Although possibly not as abundant in the aggregate as the Western Sandpipers this tiny bird is the most often and most regularly found of all the Limicolæ. They make their first appearance during the first week of July, remaining well on towards the latter part of September. I have collected only a few of them, as it seemed a useless waste of life to take many specimens. Their tameness makes close approach to within a few feet easy, when their yellow-green legs at once distinguish them from the black-legged Western Sandpipers, the only species with which they can be confused. Earliest spring record, April 29, 1917, on the Tacoma Flats by S. Warburton, Jr.

Pelidna alpina sakhalina. RED-BACKED SANDPIPER.—These birds are among the last of the Limicolæ to arrive in the fall migration, often reaching Washington after many of the other species have left for the south. They make up for it, however, by staying with us all winter and late into the spring. On the Nisqually Flats I have seen them in flocks of hundreds when the marsh was a solid pack of snow and ice, the rise and fall of the tide making sufficient feeding grounds to keep them fat and strong. The earliest record, September 26, the latest being Mr. Gamble's remarkable shore-bird flight of May 11, 1913, when they were plentiful.

Ereunetes mauri. WESTERN SANDPIPER.—In total numbers this

species is probably the most abundant of all our Limicolæ, coming a few days after the Least Sandpipers and leaving, as a rule, a few days earlier. They are spring and fall migrants, the only exception being a specimen that I took on the Nisqually Flats on November 25, 1916. This was a female and very fat, in spite of the cold season. The primaries in one wing were not quite grown to full length, which may account for the delayed migration, but it was quite able to hold its own with a few Killdeer that were flying along with it.

***Calidris leucophæa*.** SANDERLING.—The Sanderling is one of several species concerning which we have very little accurate data. They cannot be frequent visitors to upper Puget Sound, as I have no records. Cantwell reports them as abundant winter residents at Dungeness, his earliest arrivals being on August 18, 1916. He saw 200 on February 25, 1915, and also noted them between December 30, 1915, and January 16, 1916.

***Limosa fedoa*.** MARBLED GODWIT.—We have but one record for this fine wader, the specimen being shot on the Tacoma Flats on September 3, 1905, by Mr. T. C. Harmer, of Tacoma. This was secured from a flock of about fifteen large waders of a similar size, but in California I have found these godwits so often in the same vicinity with Hudsonian Curlew that possibly the flock in question may have been composed of both of these species.

***Totanus melanoleucus*.** GREATER YELLOW-LEGS.—While this bird is never actually common, it is probably more often seen than any of the other large waders, one or two generally greeting us upon every visit to the flats during spring and fall. It is among the first to reach us from the north in the fall migration, Brown taking one on the Tacoma Flats on July 4, 1914. They remain with us late into the season and are, to some extent, winter residents, as Cantwell reports them at Dungeness between December 30 and January 16, 1916. Latest spring record by Brown, is May 16, 1914, at Willapa Harbor.

***Totanus flavipes*.** YELLOW-LEGS.—Seen during the fall of 1913, when they were by no means rare, twice in 1915, and one on May 23, 1918. When not alone they were most often found in company with Long-billed Dowitchers. On August 16, 1913, a flock of forty-eight were seen on the Tacoma Flats by Mr. Brown, who collected specimens. The writer was so fortunate as to take the first recorded, an adult male on July 25, 1913, and the earliest was seen July 7, 1915, at Tacoma. Brown saw one on August 7, 1915, at Seattle.

***Helodromas solitarius cinnamomeus*.** WESTERN SOLITARY SANDPIPER.—A very rare fall migrant, and still more so in the spring. We have but four records in all, the first being one bird seen by myself August 22, 1912, on the Nisqually Flats. While this bird was not actually collected, it was very tame and I watched it from a distance of only a few feet for some time. I am so well acquainted with these birds in other parts of the country that there was no possibility of a mistake. Mr. Brown collected another at Seattle on August 6, 1915, while Mr. F. R. Decker took one at

Kiona, in eastern Washington, on August 6, 1916. Both these birds were females. The only spring records are a very fine male that was taken by Mr. Brown at South Tacoma on May 6, 1914, and three that he saw at the same place on the 7th.

Catoptrophorus semipalmatus inornatus. WESTERN WILLET.—I have heard of one or two that have been shot on the coast, but the only specimen that I have seen is a female taken by Mr. Brown on the Tacoma Flats, September 6, 1913. It was alone, not being in company with any other shorebirds.

Heteractitis incanus. WANDERING TATLER.—We do not know much about this species. Mr. Lien's earliest record is of four seen August 21, in company with one Knot and a flock of Black Turnstones. His latest record is September 8, and six is the greatest number he has ever seen at one time. All of these records were made in 1917.

Tryngites subruficollis. BUFF-BREADED SANDPIPER.—The only records of these birds that I have for the state are of a male and female taken by Mr. Lien at Westport, on September 3, 1917. He first saw the pair on September 1, and again on the 2d, visiting the place with a gun on the 3d and collecting them. Mr. Lien describes them as not at all wild, and that, "They frequented a salt marsh, or grass covered tide flat, towards the upper end and where the marsh edges off into the sand."

Actitis macularia. SPOTTED SANDPIPER.—These birds are summer residents throughout the state and breed, although nowhere to be found in abundance. I am uncertain of the conditions east of the Cascades, but in the vicinity of Puget Sound they are resident throughout the year, being found on the tideflats even in the coldest winters.

Numenius americanus. LONG-BILLED CURLEW.—Civilization is working the inevitable with these birds. At one time they were doubtless common summer residents of eastern Washington, but my only record for the state in recent years is of a pair that I found at Kiona, in Benton County, during the second week of May, 1904. At this time they had newly hatched young, concerning which they were most solicitous, hovering only ten or fifteen feet above my head and whistling continuously.

Numenius hudsonicus. HUDSONIAN CURLEW.—A regular and very abundant spring migrant, usually arriving with great regularity on April 22, which is my earliest record. Latest spring record June 2, 1916. The only season when I have positively known it to visit us in the fall is during the present year of 1917, when they were very abundant. The first seen was a male that I collected on July 16, the last being shot on October 1. The record made on June 2, 1916, was at Dungeness where Cantwell saw about fifty in scattered flocks.

Squatarola squatarola. BLACK-BELLIED PLOVER.—A common fall and spring migrant. I have no reports of them from the east side. Latest spring record May 18, 1913. Earliest fall record August 20, 1916. They are doubtless winter residents, as Cantwell saw twenty-five at Dungeness on January 24, 1916.

Charadrius dominicus dominicus. GOLDEN PLOVER.—It seems more than possible that the Golden Plover are more numerous along the coast than is generally supposed, although doubtless very far from being common. I have only two records in which the dates and other items are perfectly satisfactory. The first is a female taken at Dungeness on November 14, 1915, by Mr. F. P. McIntyre, of Tacoma. The second was taken by Mr. Lien at Westport on October 7, 1917. It was in the company of four other plover, which may have all been Black-bellied as was one of them that dropped with the same shot that killed the Golden Plover.

Oxyechus vociferus. KILLDEER.—Very abundant throughout the state, though I am not certain whether it winters on the east side. West of the mountains, in the Puget Sound Region, the Killdeer may be called a fairly common resident the year around, although probably a considerable proportion of them migrate southward in the fall. However this may be, they are to be found regularly during the winter on such of the large tide flats as the Nisqually, in Thurston County. Their numbers at this season are largely dependent upon the extent to which the inland fresh water swamps and marshes are frozen over. In January, 1916, one of the longest spells of icy weather was experienced that has ever been known on Puget Sound, during which practically all fresh water was frozen over. During this period the Killdeer assembled in hundreds on the Nisqually, and also on the Tacoma Flats in Pierce County.

Nesting begins very early, as I have seen young a week old as early as April 21, and extends well into June at least.

Ægialitis semipalmata. SEMIPALMATED PLOVER.—A regular spring and fall migrant. Never abundant, but frequently seen in twos and threes, either by themselves or in company with some of the smaller sandpipers. Earliest fall record: two taken on the Tacoma Flats on August 8, 1916. Latest spring record: two taken by Cantwell near Tacoma on May 18, 1910.

Ægialitis nivosa. SNOWY PLOVER.—Brown found these birds at Willapa Harbor on May 16, 1914. There appeared to be a small colony of them, and a few specimens taken showed beyond a doubt that they were breeding at that time, although no nests were found.

Aphriza virgata. SURF-BIRD.—These birds are probably not uncommon along the coast as migrants and would appear to be resident in winter to some extent, as shown by the observations of Mr. Lien. Specimens were taken by him on the following dates:—July 20, 1915, November 27, 1916, December 3, 1916, January 14, 1917, and April 28, 1917. The first specimens recorded were by Dr. A. K. Fisher, who took three from a small flock at the Blakeley Rocks, near Seattle, on August 30, 1897. However, it seems to me unlikely that they would be of frequent occurrence so far inland.

Arenaria interpres morinella. RUDDY TURNSTONE.—Mr. Gamble found this species present in small numbers on his visit to Willapa Harbor on May 11, 1913, when he collected a few specimens. They were still

present in that locality on May 18, 1913, when two more specimens were taken. Mr. Brown saw two at the same place on May 16, 1914, although circumstances prevented his collecting any.

***Arenaria melanocephala*.** BLACK TURNSTONE.—Migratory, for the most part along the coast, although Mr. Brown shot a pair at Tacoma on August 24, 1913, that were sitting on a raft of logs out in the bay. Mr. Cantwell reports them as winter residents at Dungeness, where his records range from August 18, December 30, January 16, to February 25.

Mr. Lien reports twenty as being the greatest number that he has seen at one time.

***Hæmatopus bachmani*.** BLACK OYSTER-CATCHER.—Without doubt resident throughout the year, although specific records for every winter month are lacking. Mr. Lien has taken them in November and on December 22, 1916. They breed fairly commonly on the rocky islands off the coast, fresh eggs being taken throughout the month of June. Three eggs is the number most commonly found. The nest is placed among the rocks fifteen feet or more beyond the reach of high water, and is composed of small stones, chips of rock, with a few small pieces of crab claws and shell.

THE BIRDS OF DESECHEO ISLAND, PORTO RICO.

BY ALEXANDER WETMORE.

THE island of Desecheo, west of Porto Rico, in Mona Passage, is distant nearly seven leagues from the town of Aguadilla. Though Desecheo has been a prominent landmark for ships passing between Porto Rico and Santo Domingo since the early voyages of discovery, its rough broken shoreline, with difficult landings and lack of a certain water supply, have left it little known. Fray Iñigo Abbad in 1788¹ describes the island as uninhabited but frequented at times by smugglers. It was said that there were wild goats on it at one time which, with crabs and shellfish, furnished food to these casual visitors. The banks off the southern shore have been noted for their fish, and fishermen coming at irregular intervals

¹ (Abbad y Lasierra, Fray Iñigo) *Historia geográfica, civil y política, de la Isla de S. Juan Bautista de Puerto Rico*, Madrid, 1788, p. 203.

from Porto Rico established temporary camps on the island where they lived for short periods and salted their catches.

Gundlach passing north of Desecheo in 1874 remarked on the abundance of waterfowl around it but did not visit it during his work in Porto Rico. Bowdish crossed from Aguadilla on June 24, 1900, and returned on the same day. He came again the following year and remained from July 6 to 10. All that was known of the bird life of the island prior to 1912 is embodied in his notes.

During my stay in Aguadilla in June, 1912, I made many inquiries concerning Desecheo and finally arranged to visit the island. With two fishermen, Juan and Pedro, who were familiar with Desecheo, I left Aguadilla on June 13 in a small open sailboat. We reached the island about five that night and after some difficulty made a landing in a small sandy indentation in the cliffs. We camped on the beach while a small cave served as a work room and shelter from the intense heat of the sun. We worked here until June 16, when we returned to Aguadilla as a storm was brewing and our water supply was low.

In December, 1912, Desecheo Island was made a bird reserve, a wise regulation, as sooner or later charcoal burners in search of wood would have visited it and destroyed the shrubs that now support and shelter part of the sea bird rookeries.

PHYSICAL FEATURES.

Desecheo Island is about one and one-fourth miles long by somewhat more than three-fourths of a mile broad. The island is rounded in general form with points projecting at the eastern and western ends. Inland the slopes rise steeply to a double pointed hill, the higher part of which is six hundred feet above sea level. The shore line is rocky and abrupt. In three places there are small bays with sandy beaches, back of which rise cliffs from thirty to fifty feet high. An ill-defined path leads around three sides of the island, but the eastern end is difficult of access. Strong currents sweep past, the surf is usually heavy, and there are rocks offshore in the little bays so that landings are made with difficulty.

The soil is thin and rocky but above tidemark the island is cov-

ered with vegetation. The core of the island is made up of volcanic rock upon which are deposits of limestone. Along the shore this limerock is eaten and eroded by wave action and shallow caves are found in several places.

The island was very dry, with no springs or watercourses. I was told that heavy rains fell at irregular intervals, and small basins in the rock had been dammed to catch rainwater. The sun was intensely hot during my stay, but the nights were cool and pleasant.

GENERAL CONDITIONS.

The vegetation somewhat resembled that of wooded hills on Culebra Island. The short-stemmed, heavy-limbed West Indian Birch (*Elaphrium simaruba*) grew on the hill slopes mingled with the Palo de Burro (*Capparis cynophallophora*). Near the shore the Té de la Playa (*Corchorus hirsutus*) was common; the Bejuco de Paralejo (*Stigmaphyllon lingulatum*) grew everywhere. There were great beds of *Opuntia* along the cliffs, *Cereus* was abundant, and a large branched cactus formed dense thickets. Small openings in the brush were grown with *Panicum utowanæum* and *Valota insularis*. These grass-grown openings were few in number and small in extent. Cacti and thorny creepers, that bound the shrubs together, made a dense jungle through which progress was difficult, so that it was necessary to stay in the trail skirting the shore or make a new one with the machete.

I noticed many signs of rodents in the grass and under the bushes and one evening after sunset found rats abundant and very tame while taking a walk beyond the rookeries above camp. Three that I shot with an automatic pistol were *Rattus rattus*, and as nearly as I could tell in the dim light all were of this small species. They were feeding on the seeds of low plants and tender herbage. A few bats were seen but under conditions that did not allow identification. I saw no trace of the wild goats that were said to range here at one time. From the dense growth of vegetation I judged that they had disappeared many years before.

The curious *Siguana* (*Ameiva* sp.) a terrestrial lizard, was found in sandy localities and was fairly common. One that lived near

my camp was more or less of a scavenger and ate bits of meat left on the fish bones that I threw out. An *Anolis* intermediate in its characters between *Anolis cristatellus* of Porto Rico and *A. monensis* of Mona Island was abundant and several specimens were preserved.

BIRD LIFE.

In his account of the birds of Porto Rico, Mr. Bowdish (1902-03) gives eight species found on Desecheo Island. I have added three more to this number, raising the known list to eleven species. One of the additions, the Scaled Pigeon, is included on the authority of the fishermen who were with me. The larger part of the species found here are forms that breed habitually on similar small isolated islands. These are the Boobies, Terns and Man-o'-War Birds. Among others, the Zenaida Dove is apparently resident. Only one passerine bird was found, the Pearly-eyed Thrasher, a species that in Porto Rico is very rare on the main island but is abundant on the small islands around it. The absence of *Cæreba portoricensis* is notable as this species is widespread in its occurrence. During the winter season it is probable that a number of migrant land and water birds stop here for short periods, and it is to these transients that we must look for other additions to the avifauna of the island. Bowdish (1900, p. 120) on his first visit says that he thought he heard the note of *Vireosylva calidris* but was uncertain. The "Sooty Tern" that he records (1900, p. 119) is *Anous stolidus*, and not *Sterna fuscata*.

BIBLIOGRAPHY.

There are three papers that make direct reference to the birds of Desecheo Island. Stahl and Gundlach both mention species that were reported to occur on this island but neither of these authors makes definite statements concerning its avifauna. The papers mentioned follow:

BOWDISH, B. S.

1900. A Day on De Cicheo Island, *Oölogist*, 1900, pp. 117-120.

1902-03. Birds of Porto Rico. *Auk*, 1902, pp. 356-366, and 1903, pp. 10-23.

WETMORE, A.

1916. Birds of Porto Rico, U. S. Dept. Agric. Bull. 326, 1916, pp. 1-140, 10 plates (including map).

ANNOTATED LIST.

1. *Phaëthon* sp. TROPIC BIRD.—Bowdish (1902-3, p. 358) saw Tropic-Birds around Desecheo Island but did not determine to what species they belonged. These birds may have been *Phaëthon americanus* Grant as that is the common species of this region. (Cf. Wetmore, 1916, p. 18).

2. *Sula piscator* (Linnaeus). RED-FOOTED BOOBY.—About two thousand Red-footed Boobies were present on the island at the time of my visit. All were in one colony. (Wetmore, 1916, pp. 18-19).

3. *Sula leucogastra* (Boddaert). BOOBY.—The Common Booby outnumbered any other species of bird on Desecheo Island at the time of my visit. These Boobies were distributed through the dense brush on the slopes so that it was difficult to arrive at their exact number, but I estimated that from 8,000 to 10,000 individuals were present. The greater part of these birds remained within four hundred feet of the shore, but many spread inland over the entire island ranging to the tops of the hills. The young were all grown, though I saw a few with down feathers clinging to the feathers about the head. Though as strong on the wing as their parents, these immature birds were averse to flying and usually merely scrambled out of the way. The adults were unable to rise from a level surface, and as I passed along the narrow trails many remained stock still snapping and hissing at me. It was wise to avoid their powerful bills as they bit and fought viciously. They flew easily from the branches of low trees and bushes or sailed down from the cliffs until, gaining momentum, they rose with strong wing beats. On the whole they showed little fear and I caught several by pinning them down with the barrel of my gun. Others floundered away over the rocks and through the plant growth unmindful of cactus thorns and the rough limestone. Many were seen with thorns or even small lobes of cactus hanging to feet, neck or wings, easily demonstrating how these prickly plants might be carried from one island to another.

On the wing Boobies were strong and graceful. Hundreds swung and circled about my head as I passed through the colonies. Collecting them was an easy matter. It was necessary only to pick out one desirable for a specimen, follow it until it was at a proper distance, and then drop it on the rocks. At a gunshot there was a great rush and commotion among those at rest and the air was filled with birds circling and sailing, that often passed close overhead. Gradually the confusion would cease and the birds would soon be perched all about me. On the rough limestone blocks above the sea they sat in rows and did not drop off until I approached closely. The call-note of the Booby was a loud *quack, quack, quack*. I saw them fishing far out at sea from the island and birds passed in and out above my camp all through the day. Even at night there was much commotion among them.

Boobies are said to nest from late in June until October. From the size of many young seen in June I would extend the latter date to February. It

was said that eggng parties visited Desecheo at times but the currents and the rocky shoreline make landing difficult and laborious so that the birds are not often disturbed.

4. *Fregata magnificens* Matthews. MAN-O'-WAR-BIRD.— About 175 pairs nested on Desecheo Island in 1912 and all had well grown young at the time of my visit. A pair of adults was collected on June 15. The female fell into the sea when shot and floated for some time with the bill submerged. On skinning this bird I found the air-sacs between skin and body filled with water.

5. *Hæmatopus palliatus* (Temminck). OYSTER-CATCHER.— Three Oyster-catchers were found June 14 on flat rocks washed by the waves. Although other birds of this uninhabited island were very tame the Oyster-catchers were wary. When I came in sight they flew to some outlying inaccessible rocks and repeated this performance whenever I appeared. The whistle was louder and sharper than that of *H. bachmani* with whose notes I had been familiar in the Aleutian Islands. Others were seen on the following day but none were taken. Mr. Bowdish (1902-03, p. 360) noted this species.

6. *Larus atricilla atricilla* Linnæus. LAUGHING GULL.— About thirty Laughing Gulls were seen on Desecheo but no nests were found. These Gulls worked along the beaches hunting for food or perched on boulders commanding an outlook of the water line. An adult was collected June 14.

7. *Anotis stolidus stolidus* (Linnæus). NODDY.— The Noddy was abundant on Desecheo and was breeding in the limestone ledges near the sea. At the time of my visit there were about two thousand here while many more were feeding a few miles offshore. On the cliffs above camp was a colony of two hundred, that was never quiet day or night. Many had not picked their nesting sites as yet and were examining the ledges, quarreling with the birds already settled and in turn getting their tail feathers tweaked sharply. When alarmed the Noddies flew all about me, calling harshly and there was great excitement among them at every intrusion. Some would leave their nests and dart fiercely at my head while others remained on their eggs until I was almost within reach. These terns were more or less active all night long, flying about and calling loudly. The common call note was a harsh *Kar-r-rk* and a scolding note resembled *Kwok Kwok*. In feeding the birds hovered over the water, darting quickly down, poising an instant while picking something from the surface and then rising again. Eggs taken ranged in incubation from fresh to well incubated. No young were found. Birds were collected for skins on June 13, 14 and 15. Mr. Bowdish (1902-03, p. 358) found a few well grown young on June 24, 1900.

8. *Sterna anæthæta* Scopoli. BRIDLED TERN.— A common breeding bird. I estimated that there were about 1500 of these terns on Desecheo Island. Many were gathered on some large rocks lying offshore that I could not reach, while others frequented the limestone cliffs and huge

boulders on the main island. At a gunshot all those near would rise and circle with the other birds. On the wing these terns were swift and graceful. Frequently half a dozen would dart out together over the water and then circle back more slowly. Males were seen standing on the rocks above the females on their nests and as I approached swooped at my head with angry cries. The nests examined were in hollows on the tops or sides of huge blocks of limestone in situations protected from the blazing rays of the sun. Some were placed in holes eaten into the rocks by the action of the water. The nests were made of a few loose pebbles and bits of loose limestone gathered together with perhaps a feather or two added. Two eggs collected were badly incubated. No young were observed. Apparently the breeding season varies from year to year as Mr. Bowdish (1902-03, p. 357-3) found fresh eggs on June 24, 1900, and notes an egg advanced in incubation taken July 6, 1901. I collected four males and one female on June 14.

9. *Zenaida zenaida lucida* Noble. PORTO RICAN DOVE.—This Zenaida Dove was common in the growths of West Indian birch and other shrubbery that covered the arid slopes of Desecheo Island. The males called all day long, but in the thorny growths it was difficult to approach them. I found scattered birds feeding in small openings or along the trails. At low tide these doves were seen frequently about pools of salt water left by the receding tide on the rough limestone of the shore. As there was no fresh water on the island it was a question in my mind as to whether or not they were drinking this sea water.

Lowe¹ remarks that *Patagienas leucocephala* is said to cross from Swan Island to Honduras, a distance of ninety-eight miles, to secure water in times of drought. I saw no indication, however, that these Zenaida Doves left Desecheo for this purpose.

10. *Patagienas squamosa* (Bonnaterre). SCALED PIGEON.—On June 15, the fishermen who were with me reported seeing several Scaled Pigeons. There seems to be some migration among these large pigeons, as at some seasons they are said to be fairly common here.

11. *Margarops fuscatus fuscatus* (Vieillot). PEARLY-EYED THRASHER.—These thrashers, the only passerine birds noted, were common on Desecheo Island. In the dense brush it was difficult to locate them though their call-notes were often heard. The fishermen who visit the island occasionally had dammed a hollow in the rocks to catch rain water, and Thrashers came often to this tiny pool. There was no other fresh water on the island so that the birds must do without in dry seasons. A pair of Pearly-eyed Thrashers had their nest in the roof of a small cave which served me as a shelter from the sun while making up skins. This nest apparently was a bulky structure as grass and twigs projected from all the openings leading into the crevice in which it was located. The female was incubating. Both birds perched about on the rock shelves without fear

¹ A Naturalist on Desert Islands, London, 1911, p. 46.

of me. They fought continually with the Noddies that were nesting there and though the terns were the aggressors in most cases, they were always worsted in the encounters. The male sang in the evenings from a cactus just above the cave entrance, frequently calling until it was almost dark.

SOME RECENT CONNECTICUT BIRD NOTES.

BY ARETAS A. SAUNDERS.

THE following notes are based on my observations in the past four years in Connecticut and relate to occurrences that are unusual and especially interesting.

Uria lomvia lomvia. BRÜNNICH'S MURRE.—Four seen closely at Norwalk, December 31, 1916.

Larus delawarensis. RING-BILLED GULL.—Three of these gulls were seen January 27, 1917, in Norwalk Harbor. They were feeding near one of the drawbridges in company with Herring Gulls. The gulls here have been fed by people until they have become exceedingly tame. These birds were watched for a long time in the best of light. The markings on the bill and on the tips of the primaries that distinguish the species were quite plain. The difference in size was less apparent than I had expected it to be. One or two gulls of this species were seen in this same spot several times in the month of February.

Larus atricilla. LAUGHING GULL.—This species is now becoming almost common along the Connecticut shore. Others have informed me of its presence since 1914. I first noted it at Grove Beach September 1, 1916, and have since noted it several times in summer, both at Grove Beach and at Compo Cove near Westport.

Phalacrocorax auritus auritus. DOUBLE-CRESTED CORMORANT.—A flock of forty-five seen at Grove Beach May 27, 1916, and another, of seventy-four, seen at the mouth of the Saugatuck River, May 19, 1917.

Mareca americana. BALDPATE.—A rather late date for this species was that of a single drake seen on a small pond at Norwalk on the morning of March 31 and again on April 1, 1917.

Charitonetta albeola. BUFFLEHEAD.—The past winter and spring, 1916 and 1917, this species has been more abundant than I have ever seen it before in Connecticut. I first noted it at Grove Beach, December 25, 1916, when several small flocks were seen. A few were seen all winter at Norwalk and Westport, and larger flocks appeared again in the spring migration from March 10 to April 7.

Ixobrychus exilis. LEAST BITTERN.—Two seen, and one, a male, secured in Great Marsh, near Norwalk, May 19, 1917. This date is rather early for this species.

Ardea herodias herodias. GREAT BLUE HERON.—This species remained later than usual in the spring of 1917, six being seen at the mouth of the Saugatuck on May 26.

Herodias egretta. EGRET.—A single bird has been reported in the marshes at Compo Cove, Westport, every summer since 1912. The bird usually stays for several days. I saw it during the summer of 1916, when it was present from July 24 to 28. It was again reported this summer, 1917.

Pisobia maculata. PECTORAL SANDPIPER.—A single bird seen in marshes at Silver Sands, East Haven, May 13, 1916. This is the only spring record for Connecticut, but the bird was seen closely, and I examined skins in spring plumage shortly after I had seen it, and am sure of my identification.

Oxyechus vociferus. KILLDEER.—This species is evidently increasing, and is now quite common in southwestern Connecticut. I observed a single bird at West Haven, March 21, 1914. I did not see it again till 1916, when a pair were seen several times in a plowed field near Westport. In 1917 the species first appeared on March 31, and was seen commonly throughout the spring and summer. Mr. Wilbur F. Smith found several nests near Norwalk, and I found downy young at Norwalk on May 12.

Arenaria interpres morinella. RUDDY TURNSTONE.—A single bird was seen at Grove Beach September 1, 1916, and four others September 9. Two were seen at the mouth of the Saugatuck River May 19, 1917.

Cathartes aura septentrionalis. TURKEY VULTURE.—One seen at Short Beach, May 23, 1914.

Sphyrapicus varius varius. YELLOW-BELLIED SAPSUCKER.—A bird of this species in juvenal plumage, wintered in Norwalk in January, 1917. I first saw it, January 6 and continued to find it every time I visited the locality till January 27, after which I did not look for it again till March 3, when it was not to be found. The bird frequented a row of Norway Spruce trees, growing about the border of a large estate.

Melanerpes erythrocephalus. RED-HEADED WOODPECKER.—This species was almost common in Edgewood Park, New Haven, in the spring of 1915. I met with it several times between April 16 and May 4, four being seen at once on one occasion. The following year, 1916, a pair nested in a hole in a trolley pole at West Haven, where I saw them on May 13, 19 and 20.

Hesperiphona vespertina vespertina. EVENING GROSBEAK.—A single bird in the female plumage, seen at New Haven, April 15, 1916, and a flock of twelve at Cannondale, April 17, 1917.

Carpodacus purpureus purpureus. PURPLE FINCH.—What was apparently the spring migration of this species began at Norwalk in 1917 on February 20. A few birds had been around all winter, but beginning with that date the birds were plentiful everywhere, singing a great deal, and

visiting various bird feeding stations, where they ate peanuts, buckwheat and sunflower seeds. These birds were abundant from this time all through the spring until May 21 when the last disappeared.

***Loxia leucoptera*.** WHITE-WINGED CROSSBILL.—Seen at Norwalk on various dates from January 13 to March 3, 1917. Never more than two birds were seen at once, but that they were not always the same two was evident from the fact that sometimes both were in female plumage and sometimes one in that of an adult male.

***Calcarius lapponicus lapponicus*.** LAPLAND LONGSPUR.—A single bird seen in salt marshes at Norwalk in company with a flock of Horned Larks, January 20, 1917.

***Poœcetes gramineus gramineus*.** VESPER SPARROW.—A single bird seen at Norwalk March 10, 1917. Whether an extremely early spring migrant or a bird that had wintered it is hard to say. No others were seen until March 31, about the normal time for the arrival of this species.

***Passerculus princeps*.** IPSWICH SPARROW.—One seen at Norwalk April 1, 1916, and another November 11, 1916.

***Zonotrichia leucophrys leucophrys*.** WHITE-CROWNED SPARROW.—May 16 to 18, 1917, a single bird was seen each day in such widely separated localities that it is not probable that they were the same individual. May 19 the species was almost common, but none were seen after that date.

***Junco hyemalis hyemalis*.** SLATE-COLORED JUNCO.—This species remained very late in the spring of 1917. I secured one on May 12 and saw others up to May 17.

***Melospiza lincolni lincolni*.** LINCOLN'S SPARROW.—One seen at West Haven, May 24, 1915, and another in Edgewood Park, New Haven, May 11, 1916.

***Cardinalis cardinalis cardinalis*.** CARDINAL.—A male Cardinal spent the winter of 1916-17 at Norwalk. It was first found by Mr. Geo. P. Ells in November, and from then on became an object of special interest to Norwalk's many bird-lovers and students. I first saw it December 9, 1916, and from then until April 9, 1917, was able to find it whenever I visited the locality it frequented, in the morning. In the afternoon I was not always so successful. It disappeared some time after April 9, and as far as I can tell was last seen by a conductor on a trolley line, which ran past its haunt, on April 11. I searched for it on the 15th and was unable to find it.

Another Cardinal, a female, was seen at Clinton during the Christmas holidays. I first saw it Christmas morning at 7 A.M. when its sharp call-note outside awoke me, and I observed it for a short time in the center of a gravel walk. The following morning and again on the 27th, the bird was seen at 7 o'clock on this gravel walk. I never succeeded in locating it anywhere in the vicinity at any other time of day. I am of the opinion that it spent the nights in a large arbor-vitæ tree about 15 feet from the point where it was seen, and that each morning it began its daily program

by picking up a little gravel from the walk. A hard rainstorm occurred on the 27th which evidently interfered with this program, for I did not see it again on the mornings following that date.

Lanivireo solitarius solitarius. BLUE-HEADED VIREO.— This species remained unusually late in the spring of 1917, one being secured on May 15 and others seen until May 24.

Vermivora peregrina. TENNESSEE WARBLER.— This species has greatly increased in numbers in the past few years, until, in 1917, it was one of the most abundant of migrant warblers. I first met with the species at Short Beach, on May 23, and 24, 1914, when a single male was found singing in the same tree, two mornings in succession. In 1915 I met with three adult males in song in the same tree at West Haven, May 20. In 1916 the birds were fairly common in the vicinity of New Haven, from May 20 to 26. In 1917 I first saw the bird May 22, though I think that I heard the song on the 18th. It became common by the 24th, and was seen almost daily, and often in large numbers until June 4. The last bird was seen June 9.

Dendroica tigrina. CAPE MAY WARBLER.— This is another species that has evidently been increasing in recent years. In 1916 it was almost common in Edgewood Park, New Haven, from May 10 to 16. In 1917 it was less common than the previous year, but I saw several specimens at Norwalk and Bridgeport on May 19 and 25.

Dendroica castanea. BAY-BREASTED WARBLER.— This is another warbler that deserves notice as one increasing in numbers. While it never was so rare as the Cape May and Tennessee, yet it always had some reputation for rarity. The past two years, 1916 and 1917, it has been one of the most abundant migrant warblers, particularly late in the season, remaining in Norwalk in 1917 till June 2.

Dendroica discolor. PRAIRIE WARBLER.— An exceptionally late fall bird was one seen at Norwalk on October 22, 1916.

Sitta canadensis. RED-BREASTED NUTHATCH.— A winter record for this species is one that I saw in Norwalk February 24, 1917.

Bæolophus bicolor. TUFTED TITMOUSE.— On March 10, 1917, I found a single bird of this species in a large red maple swamp. I first heard the bird calling from a distance, and being unable to enter the swamp, but suspecting the identity of the bird from previous acquaintance with it in the south, I imitated its whistle and succeeded in bringing it to a point about fifty feet above my head. The bird was observed by several others later, and sometimes from a distance of about ten feet. I found it several times in the latter part of March, and saw it last on April 1 after which it disappeared.

Penthestes hudsonicus subsp.? HUDSONIAN CHICKADEE.— A bird of this species appeared in Norwalk in January 1917, where it remained for some time, feeding on suet that was hung in the bushes for birds. I saw it first on January 13 and again January 27. I presume that, like the others that appeared the same winter, it belonged to the new Labrador sub-

species, but since the subspecies' validity has not yet been determined I have not listed it as such.

***Regulus calendula calendula*.** RUBY-CROWNED KINGLET.—This is another species that remained exceptionally late in the spring of 1917. I observed it up to May 18, securing a specimen on the last date.

NOTES ON THE NESTING BIRDS OF WAHPETON, NORTH DAKOTA.

BY J. K. JENSEN.

THE region covered by the following notes is a small part of Richland County, forming a quarter of a circle with a radius of three miles, west and north of Wahpeton, with the Indian School as a center. The ground covered takes in the North Dakota side of the Red River, where a little timber is to be found. The rest consists mostly of cultivated fields, some prairie and a little swampy or wet ground and a few groves around the farm buildings.

This list includes, with one or two exceptions, only birds I actually found nesting in 1917, and does not profess to be complete.

***Botaurus lentiginosus*.** BITTERN.—Very common as a nesting bird. On June 6 I found a nest in a clover-field less than a thousand feet north of the Indian School. The Bittern would generally leave the nest when I was about ten feet away. The nest consisted of a handful of dry grass, and contained a set of four fresh eggs.

***Zenaidura macroura carolinensis*.** MOURNING DOVE.—Very common. Nests and eggs were found from May 1 to September 1 both in trees and on the ground. Near the Indian School I found a nest, which first served as home for the White-rumped Shrike, later a pair of Brown Thrashers took possession and laid a set of five eggs and a Cowbird placed one of her eggs in the nest. About August 1, I again found the nest occupied, this time by a Mourning Dove incubating two eggs.

***Oxyechus vociferus*.** KILLDEER.—The Killdeer is very common in this part of North Dakota, but I only located one nest. This was placed about a hundred feet west of the Indian School in a little garden plot. The nest was a little hollow in the ground, lined with a few dry weedstalks, and on May 11 it contained four fresh eggs.

Tympanuchus americanus. PRAIRIE HEN.—I only found one nest of this species. On June 3 it contained eleven nearly fresh eggs, and was made of dry grass and a few feathers of the owner. It was quite open and easy to locate.

Circus hudsonius. MARSH HAWK.—Very common and in evidence from morning to night. On prairie land west of the city I found several nests, sometimes only a few hundred feet apart. The nests were quite well made of grass and weeds, generally raised one or two inches above the ground. Most of them contained five eggs. One nest I located on May 27 was raised thirteen inches above the level of the prairie and could be seen from quite a distance. It contained a set of seven eggs. Another found June 3 held a set of five fresh eggs, some of which were distinctly marked with brown.

Accipiter cooperi. COOPER'S HAWK.—Nests quite commonly in the timber along the river and even in the small artificial groves near the farms. On May 20 I located two nests with four and five eggs respectively. Both were typical and both were placed in elm trees less than twenty feet from the ground.

Buteo borealis krideri. KRIDER'S HAWK.—On May 6 I collected a set of two fresh eggs from a nest placed in an elm tree near the river. The nest was up about forty feet. The eggs are white, boldly marked with light brown spots.

Falco sparverius sparverius. SPARROW HAWK.—This pretty little hawk seems to be quite common wherever there is an opportunity to find a suitable nesting site. On April 15 a pair were investigating some martin boxes I had set up in the spring of 1916. I then made two boxes more suitable for the hawks, and both were accepted. One placed near the Indian School contained on May 14 a set of five fresh eggs, and the other placed on a little island in the river had a set of five on May 23.

Asio wilsonianus. LONG-EARED OWL.—On May 20 I discovered an owl of this species in an old crow's nest in a little grove about three miles northwest of the city. I found five heavily incubated eggs in the nest. The owl stayed on the nest until I was only a few feet below it.

Asio accipitrinus. SHORT-EARED OWL.—Walking across a last year's wheat field on May 20, I flushed one of these owls from a nest with seven almost fresh eggs. On June 1 I found another nest containing four fresh eggs, but a horse had stepped in the nest and broken them. A few days later I found another nest in the same field which contained two fresh eggs, but these were also destroyed.

Otus asio asio. SCREECH OWL.—This little owl seems to be very common, and I have seen several, mostly on the little island in the river. On May 27 I found a Flicker nesting in a hole in a dead stump and under the tree were the shells of several eggs of the Screech Owl. A few days before I had found a dead Screech Owl near the same spot.

Ceryle alcyon alcyon. BELTED KINGFISHER.—Very common along the river, and one or more nest holes can be seen in almost every steep bank on both the North Dakota and Minnesota side.

Melanerpes erythrocephalus. RED-HEADED WOODPECKER.— Fairly common. On June 11 a nest with six fresh eggs was found in a dead stump on the island. Nest hole about fifteen feet from the ground.

Colaptes auratus luteus. FLICKER.— Very common. One of my nesting boxes was occupied and a set of seven eggs laid. Some boys broke off the top of the box, but the Flicker hatched the eggs and raised the young ones just as if nothing had happened.

Chaetura pelagica. CHIMNEY SWIFT.— Very common and I find them nesting in several chimneys at the Indian School.

Archilochus colubris. RUBY-THROATED HUMMINGBIRD.— I have seen several Hummingbirds in this locality, and July 3 I collected a nest with two fresh eggs about a mile and a half north of Wahpeton, about fifty feet from the river. The nest was placed about twenty feet up in an elm and twelve feet out on a slender limb. June 28 I saw the female building, bringing nesting material every few minutes, and on July 1 the nest was finished and one egg laid.

Tyrannus tyrannus. KINGBIRD.— Very common. Fresh eggs can be found in the last part of June. Sets generally consist of three to four eggs, and nests are placed from two to sixty feet from the ground. On June 25 I found a nest in which were three eggs of the Kingbird and two Cowbird's eggs.

Tyrannus verticalis. ARKANSAS KINGBIRD.— Very common. All the nests found were placed in the lower dead branches of Cottonwoods between ten and thirty feet up. In a grove of about an acre I found seven nests with sets of three to four eggs. I never saw the nest placed on the ground but as I very often met both this and the former species on the prairie far from trees and saw them there in pairs for weeks I feel convinced that they either nest on the ground or in weeds.

Myiarchus crinitus. CRESTED FLYCATCHER.— On July 1 near the river I noticed a Crested Flycatcher entering a Flicker's hole with nesting material. The nesting hole was in a dead stump thirty feet from the ground. I did not have an opportunity later to investigate the nest.

Myiochanes virens. WOOD PEWEE.— Very common along the river.

Empidonax minimus. LEAST FLYCATCHER.— Very common. I found several nests; each containing four eggs and sometimes a Cowbird's egg.

Cyanocitta cristata cristata. BLUE JAY.— Not very common. A few pairs nest in the timber along the river.

Corvus brachyrhynchos brachyrhynchos. CROW.— Fairly common. A set of six fresh eggs was collected from a nest placed in an elm on the island in the river on April 23, and May 20 a nest with five nearly full grown young was located in a small grove about three miles northwest of the Indian School.

Dolichonyx oryzivorus. BOBOLINK.— Very common. These birds nest in the cultivated grass and cloverfields. I have never found them nesting on the prairies.

Zamelodia ludoviciana. ROSE-BREADED GROSBILL.—Fairly common. On June 11 I found a nest with three eggs of this species and one Cowbird's egg. June 27 another nest was located containing three heavily incubated eggs, and June 28 one more nest, with three newly hatched young. All were near the river.

Spiza americana. DICKCISSEL.—I have only seen one pair of these birds, and I did not locate a nest, but for about two weeks in June, the male could always be seen on top of bushes or weeds near the edge of an alfalfa field near the river. The alfalfa was then cut, and I did not see the birds again.

Progne subis subis. PURPLE MARTIN.—Very common. The Purple Martin was nesting all over the city. At the Indian School I set up a number of bird-boxes in which seven pairs were nesting. In June sets of four or five eggs were laid, but very few young ones were raised, as the English Sparrows were continually fighting the Martins and would go into the boxes and destroy the eggs.

Petrochelidon lunifrons lunifrons. CLIFF SWALLOW.—Common. I located a colony of twenty-five nests on a barn near the Indian School. On June 26 most of them had young.

Hirundo erythrogastra. BARN SWALLOW.—Very common. One pair were incubating a set of five eggs in a garage at the Indian School, when the building was lifted on rollers and carried about one hundred and fifty feet and turned, so the door, which had been facing east now is toward the south. In spite of all this disturbance the Swallows hatched their eggs and reared their young ones.

Riparia riparia. BANK SWALLOW.—Very common. I found them nesting in large numbers in the river banks. In one colony near the Indian School I counted more than five hundred nests.

Stelgidopteryx serripennis. ROUGH-WINGED SWALLOW.—Some of this species were nesting in the river banks, but not in such numbers as the Bank Swallow. I only located two nests, one of which contained a set of five heavily incubated eggs on June 26.

Lanius ludovicianus excubitorides. WHITE-RUMPED SHRIKE.—One nest of this species was located in a cottonwood about twelve feet from the ground, and on April 23 a set of six fresh eggs was collected. About two weeks later the birds were again incubating a set of six eggs.

Vireosylva olivacea. RED-EYED VIREO.—Fairly common in the shrubbery and timber along the river.

Dendroica aestiva aestiva. YELLOW WARBLER.—Very common. Nesting wherever a few bushes were to be found. In about one half of the nests located, were deposited eggs of the Cowbird. Quite often the warblers would build a new nest on top of one in which a Cowbird's egg had been laid. (See 'The Auk,' October, 1916).

Dumetella carolinensis. CATBIRD.—Nests were common along the river and a few were found in the groves around the farm buildings. Sets of five eggs are common in this locality.

Toxostoma rufum. BROWN THRASHER.—Common. Nesting from one to twenty-five feet from the ground. Sets of four and five eggs were common, and at times one or two Cowbird's eggs were placed in a nest.

Troglodytes ædon parkmani. WESTERN HOUSE WREN.—Very common. I set up ten wren boxes, and eight were occupied. Fresh sets of six and seven eggs were found from June 10 to July 1. I made the boxes with different sized entrance holes — $\frac{1}{4}$ to $1\frac{1}{4}$ inches — and I noticed that the boxes with the largest holes were occupied first.

Planesticus migratorius migratorius. ROBIN.—Very common. Robins were found nesting both in trees and on buildings. One nest was placed on a fire escape at the Indian School. Some of the nests contained a Cowbird's egg.

Sialia sialis sialis. BLUEBIRD.—Not very common. The Bluebirds here seem to be nesting very late. July 22 a set of four eggs was found in one of my nesting boxes.

GENERAL NOTES.

***Larus nelsoni*, in Juvenal Plumage, from the Hawaiian Islands.**—Nelson's Gull, *Larus nelsoni* Henshaw, is one of the rarest of North American Laridæ, and its juvenal plumage is apparently undescribed. It was therefore with considerable interest that the writer discovered among the unidentified gulls in the United States National Museum a female specimen of *Larus nelsoni* in juvenal plumage, No. 169682, U. S. N. M., collected by Mr. H. W. Henshaw at Hilo on the Island of Hawaii, in the Hawaiian Islands, March 13, 1899. This record adds the species to the list of Hawaiian birds. A few notes on this individual may be acceptable in the present connection.

This Hawaiian Island individual is rather small, about the size of the smallest specimens of *Larus hyperboreus* in the United States National Museum collection, and measures as follows: wing, 400 mm.; tail, 155; exposed culmen, 55; tarsus, 66; middle toe without claw, 53. The colors of the soft parts, as indicated on the label, are: "bill black; legs and feet pinkish; eyes hazel."

The juvenal plumage of *Larus nelsoni*, which this specimen evidently represents, is much like the corresponding stage of *Larus hyperboreus*, from which it differs conspicuously in its wholly black or blackish bill (in which respect it agrees with the juvenal plumage of *Larus glaucescens*), since the bill in even the nestling of *Larus hyperboreus* is blackish only at the tip. In plumage it differs principally from *Larus hyperboreus* in its darker posterior lower parts; more extensively dusky ocular region; and, on the terminal portion of the outer webs of the first three or four

primaries, in the presence of dusky streaks, similar to those in the adult, but less extensive. These, however, in this specimen, are barely noticeable on the left wing.

From juvenal *Larus glaucescens* it differs noticeably in its much paler upper parts, wing-quills, and rectrices. Furthermore, the outer edges of the secondaries are broadly white or whitish terminally, forming a rather conspicuous whitish patch on the closed wing; and there are dusky streaks on the outer webs of the terminal portion of the first few outer primaries; both of which characteristics are absent in juvenal *Larus glaucescens*. The postocular dusky streak is, moreover, much shorter and less conspicuous than in the corresponding plumage of *Larus glaucescens*, but whether this is a specific character or merely an individual variation is not certainly determinable by the material at hand, though it appears to be constant.—HARRY C. OBERHOLSER, Washington, D. C.

***Anas rubripes rubripes* in North Dakota.**—Through the courtesy of Mr. H. V. Williams of Grafton, North Dakota, I am able to place on record a North Dakota specimen of *Anas rubripes rubripes*. This bird was taken at Minto, Walsh County, in northeastern North Dakota, on April 10, 1909, and is now in Mr. Williams' collection. It appears to be the first definite record of this form for the State of North Dakota.—HARRY C. OBERHOLSER, Washington, D. C.

***Melospiza melodia phœa* in Southern California.**—A specimen of this form collected by me at Placerita Cañon, Los Angeles Co., on February 18, 1917, appears to be the only one known from the southern part of the State, and is therefore noteworthy. The bird was a female, and is now in the U. S. National Museum, where it was identified by Dr. H. C. Oberholser. The few previous records of this subspecies in California appear to be restricted to the northern half of the State, in Del Monte and San Mateo Counties.—EDWARD J. BROWN, Los Angeles, Cal.

***Numenius americanus americanus* not a Breeding Bird of Michigan.**—Mr. B. M. Swales has kindly called my attention to the unreliability of a Michigan breeding record in my recent paper on *Numenius americanus* (cf. 'The Auk,' XXXV, No. 2, April, 1918, pp. 189-190). In the United States National Museum there is a single curlew's egg, supposed to have been collected by a Mr. C. P. Davis at Jackson, Michigan, and which is so entered in the catalogue and other records of the National Museum oölogical collection. The original entry, which by some inadvertence I failed to verify, made in 1860 by Professor Baird, shows that he was suspicious of the authenticity of this specimen and even of its being from America. Since it was obtained from Mr. Davis among a lot of miscellaneous birds' eggs from various parts of the world, and since there is no positive evidence that it was really collected in Michigan, it seems altogether too doubtful

to be upheld as a breeding record for that State. This explanation is here made in order that the facts in this case may be available to workers in Michigan ornithology. By the elimination of this record the eastern known limits of the breeding range of *Numenius americanus americanus* become restricted to southern Wisconsin and northern Illinois.—HARRY C. OBERHOLSER, Washington, D. C.

The Rough-legged Hawk (*Archibuteo lagopus sancti-johannis*) at Washington, D. C.—The Rough-legged Hawk is of sufficient rarity in the District of Columbia to warrant placing on record a specimen which came into my possession on January 1, 1918. The bird, wounded and unable to fly, was picked up by some boys in the open country north of Woodridge, close to the eastern line of the District. Previous records from this region are as follows:¹

1859 — one.

December 29, 1879 — one seen by H. W. Henshaw.

1880 (winter) — one.

December 23, 1882 — specimen in U. S. Nat. Mus.

March 17, 1888 — Sandy Spring, Maryland; specimen.²

March 30, 1888 — one seen by Chas. W. Richmond.

January 1, 1895 — one seen on Potomac flats by E. A. Preble.—

ARTHUR H. HOWELL, Washington, D. C.

Occurrence of Goshawks (*Astur a. atricapillus*) and Saw-whet Owl (*Cryptoglaux acadica*) in the Vicinity of Washington, D. C.—

It is interesting to note that the Goshawk in the extended winter migrations of 1916 and 1917 reached the vicinity of Washington, D. C. Mr. T. A. Davis secured a fine adult at the Bureau of Animal Industry farm near Beltsville, Maryland, December 20, 1917. It was captured in a trap set beside a large rooster it had killed.

Mr. Davis states that he shot two others of this species at the same locality September 1 and 2, 1916. The only previous record in this vicinity was of an adult female killed at Sandy Spring, Maryland, December 27, 1887.

A female Saw-whet Owl (*Cryptoglaux acadica*) taken in a grove of small pines at Sandy Spring, Maryland, November 30, 1916, was one of the northern species which drifted south in the autumn of 1916.—A. K. FISHER, Washington, D. C.

Large Flight of Great Horned Owls and Goshawks at Hadlyme, Connecticut.—Under date of December 29, Mr. Edward H. Forbush of Massachusetts wrote me that early in November, he had learned from Canada that probably because of the great dearth of rabbits in the north a great flight of Horned Owls and Goshawks was coming south.

¹ Cf. Cooke, Proc. Biol. Soc. Washington, XXI, 1908, p. 116.

² Fisher, Hawks and Owls of the U. S., Bull. 3, Div. Orn. & Mamm., 1893, p. 91.

In November and December many Goshawks appeared at Hadlyme, also many Great Horned Owls; the latter being very commonly heard and seen until into February. The game keeper of a pheasant farm at Hadlyme trapped and killed during the fall and winter up to March 10: 91 Great-Horned Owls; 25 Barred Owls; 15 Screech Owls; 9 Long-eared Owls; and 84 Goshawks, and from September 1916, to March 10, 1918, 74 Red Shouldered Hawks; 60 Cooper's and Pigeon Hawks; and 35 Sharp-shinned and Sparrow Hawks.

The keeper placed eight Horned Owls in a wired enclosure and kept them for some time during the month of January until they began killing and eating each other. This was kept up until only two remained. They were well fed all of the time they were in captivity on dead pheasants killed by other hawks and owls, and Starlings were also shot for them.

The Great Horned Owl has been fast nearing extermination in Connecticut as a permanent resident.—ARTHUR W. BROCKWAY, *Hadlyme, Conn.*

Megaceryle vs. Streptoceryle.—In a paper on the Classification of the Kingfishers (Bull. Am. Mus. Nat. Hist., 1912), the writer showed that the range of variation in size, form and coloration in the genus *Ceryle*, as commonly recognized, is so great that the two subgenera of the A. O. U. Check-List (1910), *Megaceryle* and *Chloroceryle*, should unquestionably be given generic rank. Working independently, Mr. Ridgway (Bds. N. & M. Amer., VI, 1914, p. 407), treated not only these two groups as full genera but gave equal recognition to *Streptoceryle*, a segregate of *Megaceryle*. The former includes the two American species *M. alcyon* and *M. torquata* and the African *M. maxima*, while *Megaceryle* is restricted to the two closely allied Asiatic species *M. lugubris* and *M. gutturalata*.

Mr. Ridgway separates *Streptoceryle* and *Megaceryle* on account of supposed differences in the form of the bill, relative length of tarsus and inner toe, and coloration. Regarding the character of the feet, I can find no difference whatever, the relative length of the tarsus and toes being remarkably uniform in all the species of the group. So far as general coloration is concerned, the Asiatic species are not essentially different from the African *M. maxima* which connects the former with the American species. In fact, in the markings of the primaries the Old World species are in close agreement with each other, while those of the New World are decidedly different. The coloration of all the forms of *Megaceryle* (*sensu lato*) may be considered of one diversified type as opposed to the different styles of color or pattern seen in *Chloroceryle* and *Ceryle*.

There remains as distinctive of *Streptoceryle* only the form of the bill. This is somewhat more slender, with straighter culmen, the tip of the maxilla more tapering and acute, and the gonys more strongly upcurved. In view of the close resemblance in all other points of structure and the essential agreement in size and coloration, I believe that *Streptoceryle* may profitably be relegated to synonymy. It is significant that Bonaparte in proposing *Streptoceryle* restricted it to the two American species,

torquata and *alcyon*, the African *maxima* being considered a *Megaceryle*. It is a question whether *M. alcyon* is not actually the most distinct species of the genus, differing as it does in its small size, slender bill, and pointed wing, and in certain details of coloration. This fact also weighs against the recognition of *Streptoceryle*.

As further bearing on this question, the case of *Chloroceryle* is worthy of attention. *C. amazona* differs from its three congeners in its distinct crest, nearly even tail, relatively longer second toe, eighteen (instead of fourteen or fifteen) secondaries, and in its larger size. While absolute consistency in our classification is probably impossible of attainment, yet in this particular case the proper course seems clear, namely that if *Streptoceryle* be recognized, then *Chloroceryle* must also be divided. In its coloration, eutaxic wing and scaleless tarsus, *C. amazona* agrees with the three other species of the genus, and as in the case of *Megaceryle*, it seems far better to leave this natural genus intact.—W. DeW. MILLER, *American Museum of Natural History, New York City.*

The Sapsucker Wintering in Central Maine.—Inasmuch as the Yellow-bellied Sapsucker is a bird of evil repute the facts about to be recorded may not be particularly welcome but as the couplet

"In men whom men condemn as ill
I find so much of goodness still,"

may be true also of 'our little brothers of the air' I wish to speak a good word for this much maligned bird.

The Sapsucker is a bird which is not common in our locality. Previous to the winter of 1911-1912 I had seen it only rarely, during migrations, the dates being April 17-19 and October 3-5. Therefore I was much surprised on December 11, 1911, to observe one of these birds in our apple tree in company with a Downy. At first I thought it simply a tardy migrant, but when its visit was repeated on the 13th, 14th and 15th of the month, with snow falling on the last day, my curiosity was aroused to see whether it would winter with us. The nearest approach I could find to a statement of its wintering in our latitude was in an article which appeared in the 'Lewiston (Maine) Journal,' under date of April 21, 1898, in which the writer says that the Yellow-bellied Sapsucker, "is said to be migratory, but if he is, he frequently stays with us very late and returns very early," but this statement seems too indefinite to prove the point in question.

My observations were made from the windows of my home and the trees which the bird visited so regularly were sufficiently near to allow most excellent views of him in all positions. He appeared on the 18th, 19th, and 30th of December and on New Year's Day he spent nearly the entire forenoon in the apple trees near the house, lurching from the frozen fruit which had been left on the trees and hunting over the trunks and branches.

On January 2, he evidently came as soon as it was light and remained until nearly dark, putting in a nine-hour day of hard work without intermission,

going at intervals to peck at the apples, but spending the greater part of the time upon the trunks of the trees. The vigorous way in which he threw off great flakes of bark was amusing, and quite a quantity of bark accumulated on the snow under the trees. Who shall say that this work on the trees was not beneficial? One pretty habit which may be worth noting is that while pecking at the apples he would often cling with his feet to the apple he was eating and hang, head downward, as chickadees so often do.

On January 3, he was here the greater part of the forenoon, but about noon there was a great commotion and we rushed to the window only to see an impending tragedy. A Northern Shrike was chasing our Sapsucker. Nearly two weeks elapsed during which time I grieved over the untimely fate of the little feathered friend I was watching with so much interest,—two weeks of extreme cold and of severe storms. On the afternoon of January 16, however, he returned to his old haunts, eating apples and hunting on the tree trunks alternately. He did not seem quite as strong and active as before, owing, perhaps, to the severe weather of the previous fortnight, the mercury having ranged from 28° to 32° below zero.

It was interesting to me to notice on this occasion the perfection of his protective coloring. The trunks of the trees were quite snowy with the rather damp snow clinging to the bark and as the bird remained almost motionless for some time on the trunk of an apple tree his spotted back and the longitudinal stripes on his wings simulated the bark of the tree with the snow upon it so as to almost defy detection. I could locate him only with difficulty even though I knew just where to look. The next day he came again and seemed as sprightly as ever and we also saw him January 19–22, 24 and 31, February 2, 6 and 9, and March 1, 3, 5, 10, 12 and 20. He was also present April 2 and 5, after which date I surmise that he went farther north.

Since that year I have seen the Sapsucker only occasionally during the migrations, the dates being approximately as previously given, in April and October.—HARRIET A. NYE, *Fairfield Center, Me.*

A Crested Flycatcher injured by Swallowing a Grasshopper.—At Royal Palm Hammock, Dade County, Florida, January 24, 1918, I noticed a Crested Flycatcher (*Myiarchus crinitus*) fluttering along the road through the jungle, unable to fly. I caught it in my hand and found it weak and much emaciated. Closer examination and dissection showed a grasshopper's femur about an inch long in the abdominal cavity, the larger end protruding for a distance of a quarter of an inch, but not having punctured the skin. This leg had apparently been swallowed by the bird and had worked through the wall of the stomach into the abdomen.

I am indebted to Mr. Alexander Wetmore, of the Biological Survey, for the following notes on the injury to the stomach:

"Examination of the stomach showed a hole through the wall at the extreme lower end of the ventriculus, slightly to one side, where the stomach

wall was thin. This opening was nearly a millimeter across and was evidently of old standing, as the corneous hardened gizzard lining extended through to the outer surface, completely sheathing the walls of the opening. There was a slight depression on the outer surface of the stomach, evidently made by the projecting leg. This depression was lined with a thickened, skin-like deposit. The stomach lining had been shed recently as part of the old inner surface still adhered at one side near the wound.

The stomach was full, containing berries, *Pentatomid* remains, tibia of a locustid, etc."—ARTHUR H. HOWELL, *Washington, D.C.*

An Attempt to Breed the Pine Grosbeak in Captivity.—The last week in January, 1917, I heard of a small flock of Pine Grosbeaks or "Canada Robins" as they are called locally, in a grove of red cedars about a mile and a half from my home. The morning of January 28 with bright sunshine and thermometer hovering around zero, I took a bamboo fish pole about eight feet long with a short stout piece of string and slip knot that would hold open three or four inches and went fishing for them. I found a flock of at least twenty-five Pine Grosbeaks *all* in the gray plumage and about the same number of Evening Grosbeaks, the first ever noted here. It was a beautiful sight to see half a dozen of each kind feeding on cedar berries from the same branch. The Pine Grosbeaks were very tame, as is usual when in this latitude, but I could only approach within about thirty feet of the Evening Grosbeaks when they would go off in a startled whirl like a bunch of English Sparrows.

I soon secured three of the Pine Grosbeaks, one of which was much darker than the other two and I judged it to be a female. Returning home I put them in a cage 24 x 18 x 12 inches which I placed in the living room. The birds quickly became contented and in a few days would take hemp seed from my hand or mouth. The second week in February the two brighter colored birds began to sing a low sweet warbling song and at other times kept up a pleasing conversation.

Wishing to keep a pair, male and female, I sent one of the singing birds to the Bronx Zoo where it died in a week or two and was dissected and found to be a male. About the middle of June my singer dropped dead from the perch one morning, and dissection proved it a female. The remaining bird appeared lonesome and for about a week often made the whistling call. The cage was then hung outside the kitchen window over which a grapevine was growing, with a wide board over the top to keep off the rain and within a few days the bird began singing with even more vigor and vim than the others had shown. The first week in July I noticed her hopping about the cage with bits of grass in her beak trying to fasten them somewhere so I placed a wire bowl in an upper corner and put in nesting material—shredded bark, sticks, grass and a few feathers, with which she at once began to fill the bowl and within a week had formed a very good nest. In this on July 9 she deposited an egg and by July 15 she had completed the clutch of four perfectly typical eggs. Being infertile I had to add them to my collection.

During the nesting period the bird would eat from one to three moderate sized angleworms a day. It did not bolt them down after the manner of the robin but bit off small pieces and chewed them before swallowing. Cuttle bone was also in demand. This feeding continued for perhaps three weeks and again during the moult in September and October. At other times the bird would take no animal food although insects and worms of various kinds were offered. Its staple food was canary millet, rape, oats and a little sunflower seed with plenty of fruit and succulent grass, lettuce, cabbage and apple cores. The past winter the cage has hung outside with a hood of transparent celluloid to cover the upper two thirds for shelter and wind break. I hoped that the Pine Grosbeaks would visit us again and that my lady bird by calling might help me to obtain a mate for her. None visited this part of Connecticut the past winter, however, and I think but very few came below latitude 45°. I still have hopes of breeding them in captivity as they very soon become tame and contented with cage life. My bird did not mind the cold of the zero week during which she had an extra allowance of hemp and sunflower seed and a bit of suet. She began singing February 1 and at present writing, March 24, 1918, is singing much of her time, using her whistling call notes when Robins or Starlings fly near. Her song is identical with that of the male and rather reminds one of the song of their pigmy representative the Purple Finch but lacks the ringing quality.

If I obtain a male to mate with my bird another year and should succeed in breeding them, there are several experiments to be made. One is to see if birds raised here and given their liberty would remain throughout the year and another in regard to color changes in the male.—GEO. M. MARCKRES, Sharon, Conn.

The Systematic Position of *Calyptophilus*.—One of the most peculiar of the many aberrant Antillean forms is the monotypic genus *Calyptophilus* of Haiti. This form was originally described by Cory in 1883 as *Phenicophilus frugivorus*, and the following year the describer proposed for it the generic name by which it has since been known.

Sclater (Cat. Bds. Brit. Mus., XI, 1886), considered the two genera *Phenicophilus* and *Calyptophilus* to form a subfamily of the Tangaridæ confined to the island of Haiti. At the same time he remarked, "I have some doubts whether the *Phenicophilinæ* ought to be included at all in the *Tanagrine* series."

Notwithstanding its peculiarities *Calyptophilus* was allowed to remain in the Tangaridæ until 1902 when Ridgway (Bds. N. and M. Amer., III, p. 1), after enumerating several genera that he considered out of place in the Tangaridæ added, "Another genus must also be removed. This is *Calyptophilus* Cory, usually placed next to *Phenicophilus*; but being a 'ten-primaried' bird, it obviously does not belong here. *Calyptophilus* is of very doubtful position, but probably is a member of the *Mimidæ*." Accordingly in Part IV (1907) of the same work we find *Calyptophilus* as a

doubtful member of the Mimidæ, constituting the subfamily Calyptophilinæ.

Cory, in the recently issued Part II, No. 1, of his 'Catalogue of Birds of the Americas', has raised the subfamily to family rank as "? Calyptophilidæ" with the comment that "the monotypic genus may later be considered to represent a subfamily."

I have recently had the opportunity of examining nine perfect skins of this species in the collection of Dr. L. C. Sanford. These prove that *Calyptophilus* is not ten-primaried as stated by Mr. Ridgway, but typically 'nine-primaried,' the tenth primary being a minute concealed vestigial quill varying from 4 to 8.5 mm. in length. There is no longer any reason for retaining this genus in the Mimidæ, and I believe that for the present, at least, it should be restored to its former position in the Tangaridæ next to *Phenicophilus*, and in the neighborhood of *Tachyphonus*, *Mitrospingus* and *Rhodinocichla*. I would also suggest that the name of Chat-Thrasher bestowed by Mr. Ridgway be emended to Chat-Tanager.—W. DEW. MILLER, *American Museum of Natural History, New York City.*

***Junco aikeni* in New Mexico.**—In the last (1910) edition of the American Ornithologists' Union 'Check-List of North American Birds,' *Junco aikeni* is reported as of casual occurrence in New Mexico. Since there is no previous printed information that authenticates this statement, it seems worth while to place on record the single specimen that forms its basis, and this more since it forms the only record for New Mexico, and, furthermore, represents the southwestern limit of the known winter range of the species. This individual is now in the Biological Survey collection (No. 192902, U. S. Nat. Mus.) and is a female in juvenal plumage, collected two miles north of Arroyo Seco, New Mexico, at an altitude of 8000 feet on January 20, 1904, by Mr. M. Surber.—HARRY C. OBERHOLSER, *Washington, D. C.*

Notes on Some Bird Fossils from Florida.—On May 15, 1918, Dr. E. H. Sellards, State Geologist of Florida, sent me a small lot of fossil bird bones from Tallahassee and they were received a few days after that date. In the letter of transmittal Dr. Sellards states that one of these specimens is "a bird bone that came from an Indian mound. This bone is marked merely x, no other number." I find it to be the left humerus of a Florida Cormorant (*Phalacrocorax a. floridanus*), nearly perfect, and in a subfossilized condition, being of a rather pale earth-brown color and very pliable.

In referring to these "scraps" in his letter of the fourteenth of the same month Dr. Sellards says that "The one small piece of bone differing from the others in color is from a different locality. I find it in a collection from the Pleistocene at Camp Dam on the Withlacoochee River, and presumably it was taken in that locality although it seems to have escaped getting a number assigned to it." This bone is the distal end of a right tarsometatarsus.

tarsus and belonged to a bird of medium size. It is well fossilized but is too fragmentary for definite reference.

All the remaining bones in this collection belonged to the Wild Turkey (*Meleagris gallopavo*) and apparently to the same adult individual. They are thoroughly fossilized and as fragmentary parts of bones, more or less perfect. In color they are generally of a pale cream white, blotched and otherwise rather sparingly marked with deep brown and rusty. The right coracoid is slightly chipped, otherwise nearly perfect. This is likewise true of the distal third of the right ulna found in the lot, and the distal portions of the two carpometacarpi, of which there is the lower two-thirds of the right tarso-metatarsus.

These turkey bones all came from the Pleistocene cavern deposits at Ocala, Florida, and bear the following original numbers, to wit: 7799, 7800, 7934, 7946, and 7954. They will probably be added to the collections of the U. S. National Museum, where they now are, and I have the permission of Dr. Sellards to publish the above notes in regard to them.

Among these I find a vertebra of the neck of a turtle — the ninth in the chain, which, in this genus, is the one articulating with the first co-ossified vertebra of the carapace. It came from a large-sized, soft-shelled turtle that apparently belonged to a specimen of *Apideretes*, possibly *ferox*, the group to which the fossil soft-shelled turtles are usually referred, while the form of that genus now found in Florida is *Trionyx ferox* or *Amyda ferox*. The last free vertebra of the neck in these turtles is very differently formed from any other in that section of the spine. It is spreading and much flattened from above downward. This is the fossil vertebra we have, and it is my present intention to describe it elsewhere; it is only noted here in that we may know what other animals were in existence in Florida at the time the Pleistocene Wild Turkeys flourished there.— ROBERT WILSON SHUFFELDT, Washington, D. C.

A Note Concerning Bird Mortality.— On December 24, 1917, at Norwalk, Conn., while taking a Christmas census for 'Bird-Lore,' I had an experience so unusual and interesting that I believe it worth putting on record. In the course of the morning I noted a Field Sparrow (*Spizella pusilla pusilla*) flying from one clump of bushes to another, and chipping rather excitedly. Not identifying it immediately I watched it for some time. It finally flew into the low hanging limb of a Norway spruce, and then dropped vertically down into a hollow in the snow, where I could not see it. The chipping noise ceased, and though I watched for some time, the bird did not reappear. I finally walked cautiously up to the hollow under the spruce limb, and found the bird lying upon its back. I picked it up. Every muscle in its body was rigid. Its feet were extended up straight and its eyes were open wide. Its breast was inflated as though the lungs were filled with air that it could not expel. Thinking it suffering from cold, I tried to warm it in my hand. Soon its muscles relaxed, its eyes closed, its head drooped and it died in my hand.

Dissection of the body later, showed no apparent cause of death save that there was little food in the stomach, a condition that could not be considered abnormal early in the morning. But the stomach contained no small pebbles or grit, such as are generally present in the stomachs of seed-eating birds. There had been snow on the ground for several days, so that possibly the bird could not get such material, and this might have been the cause of death. The body was not in the least emaciated, however, so that if this lack caused death, it was rather by something akin to acute indigestion than by starvation. The previous night had not been unusually cold, and weather conditions up to that time were normal.

That afternoon I picked up a dead Song Sparrow (*Melospiza melodia melodia*) that had possibly met its death in the same manner. The number of birds that are found dead is larger than most of us realize. Last spring twenty-four birds were brought to me by pupils of the Bridgeport High School. The West Haven High School has a very good collection of mounted birds, nearly all birds that were found dead and brought in by pupils. Most of such birds that I have examined have shown no sign of injury. Probably many birds die in this sudden manner, but the chances of an observer actually witnessing such a death must be very slight.—ARETAS A. SAUNDERS, *Norwalk, Conn.*

Birds and Mulberries.—Though it is well known that mulberries are very attractive to many species of birds, an instance of this attractiveness that seems worthy of record has recently been observed by the writer.

On the farm of Mr. J. B. Golsan, near Prattville, Ala., is a small orchard of nine "Everbearing" mulberry trees situated only a few rods from the barnyard in a corner of the pasture, and surrounded on three sides by woods and thickets. On April 29, 1918, these trees, covered with ripening fruit, were kept under close observation from 3:15 until 5:15 P. M., and though the day had been mostly cloudy, with some rain — by no means ideal for birds — twenty-two species were recorded in the orchard in that short time. Next day (April 30) three additional species (Towhee, Chat, and Carolina Wren) were recorded by the writer and one (Hairy Woodpecker) by Mr. Lewis S. Golsan. No attempt was made to count the host of individuals which was constantly passing between the mulberry trees and the surrounding woods. The list of species follows, the asterisk denoting that individuals of the species so indicated were seen to actually swallow mulberries (a six-power binocular was used): *Dryobates v. auduboni*, **Dryobates p. pubescens*, **Melanerpes erythrocephalus*, **Centurus carolinus*, *Archilochus colubris*, **Tyrannus tyrannus*, **Myiarchus crinitus*, **Cyanocitta c. florincola*, **Icterus spurius*, **Icterus galbula*, *Passer d. hostilis*, **Zonotrichia albicollis*, **Pipilo c. canaster*, **Cardinalis c. cardinalis*, *Zamelodia ludoviciana*, **Passerina cyanea*, **Piranga erythromelas*, **Piranga r. rubra*, **Vireosylva olivacea*, **Icteria v. virens*, *Mimus p. polyglottos*, **Dumetella carolinensis*, **Toxostoma rufum*, *Thryothorus l. ludovicianus*, **Hylocichla mustelina*, and *Hylocichla f. fuscescens*.

In almost every instance the Orchard Orioles would pluck a whole berry and then hold it under one foot and eat it piecemeal. Indigo Buntings seemed very partial to a white variety of berry and paid little attention to the others. It is perhaps worthy of note that at the time these observations were made dewberries were ripening in great profusion along almost every hedgerow.—ERNEST G. HOLT, *Biological Survey, Washington, D. C.*

An American Edition of Audubon's 'Ornithological Biography.'—

In a recent bibliographical memoir of Audubon's work,¹ Doctor Stone included the American (Philadelphia, 1831) edition of volume one of the 'Ornithological Biography,' also mentioning that there was said to be another American edition of the same volume, dated 1832, and referring in a foot-note to Loomis' description² of a copy of this edition. Loomis states that this edition, which bore the imprint Judah Dobson, Agent, and H. H. Porter, is "wholly distinct so far as typographical features are concerned" from the Edinburgh edition and mentions, casually, the existence of an edition of the same year (1832) with the imprint of E. L. Carey and A. Hart, Philadelphia, which, apparently he had not seen, or had not at hand, as his statement that it is "the Edinburgh edition with the Philadelphia title-page" is misleading.

A copy of the E. L. Carey and A. Hart, 1832, Philadelphia edition is now before me. Like Loomis' copy it is wholly distinct typographically from the Edinburgh edition, but typographically similar to the Dobson and Porter, Philadelphia, 1831, edition, except the imprint of the title. A comparison of these two American editions of volume one, at hand, with the Edinburgh edition of volume one, seems to show that the first two were printed from the same setting of type, corresponding line for line throughout, all peculiarities of any given letter or alignment being the same. In this respect they differ from the Edinburgh edition, the minor differences in the spacing of letters or words alone making it clearly evident, where gross differences are wanting, that the work is of another setting of type.

So far as I am aware, the imprints on these two American editions of volume one have not been given. That of the Dobson and Porter, 1831, edition is as follows:—Philadelphia: (which is in black-letter) | Judah Dobson, Agent, 108 Chestnut Street; | and | H. H. Porter, Literary Rooms, 121 Chestnut Street. | MDCCCXXXI.

The imprint on the title of the Carey and Hart, 1832, edition is as follows:—Philadelphia: (which is in black-letter) | E. L. Carey and A. Hart — Chesnut Street. | MDCCCXXXII. In this edition Chestnut Street is incorrectly spelled, as given.

¹ Witmer Stone. A Bibliography and Nomenclator of the Ornithological Works of John James Audubon. 'The Auk,' XXIII, 1906, pp. 298-312.

² Leverett M. Loomis. A Forgotten Volume. 'The Auk,' VIII, 1891, p. 230.

On the reverse of the title-page in both these editions is:— Entered according to the act of Congress, in the year one thousand eight hundred | and thirty one, by R. Harlan, M. D. in the Clerk's office of the District Court of the | United States, in and for the Eastern District of Pennsylvania. | Philadelphia: | Printed by James Kay, Jun. & Co. | Printers to the American Philosophical Society. | No. 4, Minor Street.

Both these editions, similar to one another, differ in minor points of typography from the Edinburgh edition. Loomis states that his copy differs from the Edinburgh edition in typography. It is likely that the several American editions of volume one were all printed from the same setting. The reading matter, so far as I have noted it, is the same in the two American editions as in the Edinburgh edition, also before me.

A few differences in addition to the title-pages which will satisfactorily identify the printed-in-Philadelphia, volume one, editions, may be pointed out: Typographical variation of the American editions from the Edinburgh edition, begin in the first page of the introductory address, (p. v), second line. In the American print this line ends with the word "no"; with the word "wish" in the Edinburgh edition. The printer's signatures are different throughout. On page 1, the "A" in the American edition is at the lower left hand corner; it is in the lower right and smaller sized, in the Edinburgh volume. Finally, the pages at the back containing the list of subscribers in the American editions runs over onto the sixteenth page, while in the Edinburgh copy it is completed on the fifteenth.

The pagination of the various editions is not different; the paper of the American editions is softer than the other. The size of the leaves is greater in the American editions, somewhat taller and half an inch wider. After discussing volume one of the 'Ornithological Biography,' Stone, in the paper previously cited, says that he knows of but the one edition (i. e., the Edinburgh) of the remaining volumes. A copy of the American edition of volume two has however recently come into my hands in a set, of which volume one is the Carey and Hart, 1832, edition, full imprint of which is given above; and volumes three, four and five the Edinburgh edition. Volume two of this American edition has the following imprint:— Boston: (which is in black-letter | Hilliard, Gray, and Company. | MCCCCXXXV. The title-page is otherwise an exact transcription of the corresponding Edinburgh edition, except that "&c. &c." becomes in the American edition "Etc. Etc." On the reverse of the title of the American edition is:— Entered according to Act of Congress, in the year 1835, | by Victor Gifford Audubon and John Woodhouse Audubon, | in the Clerk's Office of the District Court of the District of Massachusetts. | J. D. Freeman, Printer, | 110, Washington Street. This American edition of volume two is printed throughout from an entire reset of type, any and every page of which shows minor or greater differences from the Edinburgh, 1834, edition of volume two. To the casual reader, besides the differences in the title-page it may be pointed out that in the American edition the errata on | page 580 (unnumbered in both editions) are omitted, corresponding cor-

rections having been made in the text in the later (American) edition. The paper differs from that on which the corresponding Edinburgh edition is printed, being of excellent quality, and entirely free from foxing, the pages are larger, slightly trimmed, and the volume altogether a fine example of American book making.—WILLIAM C. BRAISLIN, M. D., *Brooklyn, N. Y.*

RECENT LITERATURE.

Loomis on the Tubinares.¹—As is generally known Mr. Loomis has been engaged in a study of the Tubinares for a good many years past. As early as 1895 there appeared the first of his series of papers on Californian water birds and following these he, as Director of the museum of the California Academy, organized an expedition to the Revilla Gigedo Islands which brought back a large collection of these pelagic birds to a study of which Mr. Loomis at once devoted himself. All of this material was destroyed in the disastrous conflagration of 1906, but the Academy's Galapagos Expedition under Mr. Rollo H. Beck, which returned in the same year, brought even richer material and upon this collection and other recent accessions, numbering upwards of two thousand specimens, Mr. Loomis's study is based. He has likewise visited the leading museums of the United States and studied their material while he has embodied the results of his own field studies and the manuscript notes of members of the two expeditions above referred to—Messrs. E. W. Gifford, Rollo H. Beck and Dr. A. S. Bunnell. Naturally his report constitutes a contribution of very great importance to our knowledge of these puzzling birds of the high seas and has been looked forward to with much interest by ornithologists.

The treatise has been prepared with much deliberation and in the scholarly style that has always characterized Mr. Loomis's writings while the author's thorough acquaintance with the literature of the subject is manifest on every page. It is divided into six parts: I. Historical; giving a brief sketch of the men and publications which have contributed to our knowledge of the group, including portraits of Coues, Salvin and Godman, after whom he has named the principal periods in the literature of the Tubinares; II. Geographic Distribution; III. Migration; IV. Variation; V. Classification and Nomenclature; VI. Results of the Study.

¹ A Review of the Albatrosses, Petrels, and Diving Petrels. Expedition of the California Academy of Sciences to the Galapagos Islands, 1905-1906. By Leverett Mills Loomis. *Proc. Acad. Calif. Sci. Fourth Series*, Vol. II, Pt. II, No. 12, pp. 1-187, pl. 1-17. April 22, 1918.

The last part comprises nearly two-thirds of the entire report and to the student of the Tubinares is the most important portion. It treats of the forty-four species obtained by the expedition and goes into great detail regarding variation in size and coloration, migration and habits. A vast and important addition is made to our knowledge of these birds but the evidence presented may very likely be interpreted differently by other students of the group, where it relates to the systematic arrangement of the forms.

In the section treating of classification and nomenclature Mr. Loomis considers all the known species, which he reduces to eighty-six in number, and gives his views upon these matters more concisely. His attitude as is well known is extremely conservative in regard to the recognition of species while subspecies he rejects entirely. To quote his own statement of his views: "Some ornithologists would differentiate all discernible geographic variation into subspecies; others would make selections and have 'practical subspecies.' Under the first method the separations become so fine that even typical examples can scarcely be determined. Under the second method the separations rest largely on the shifting sands of individual opinion. . . . In the present paper geographic variation is considered in connection with the other variations of species, the subspecies theory being discarded as a theory that has outlived its usefulness."

The flaw in Mr. Loomis's solution of this vexing question is that he presumes that "species" are things definitely established while as a matter of fact they are matters of personal opinion just as are "subspecies" and his action simply shifts the issue from determining which subspecies shall be recognized to deciding which forms are species and which are subspecies. When the custom of recognizing geographic forms by name, either binomially or trinomially, is practically universal, and when students will agree upon the majority of such forms quite as readily as they will upon the number of "species" that are to be recognized, it seems that the value of a work is impaired in which such an ultra-conservative attitude is maintained.

Mr. Loomis has always been an ardent student of bird migration and his numerous contributions to the subject are well known, so that one turns with especial interest to the chapter dealing with this fascinating problem in order to learn his present views. These we find rather disappointing inasmuch as he adheres closely to the old idea that "the young learn to migrate through the example of the adults," and "that the adults are guided by physical phenomena over areas that experience has rendered familiar." Dr. John B. Watson's well known experiments with Noddy and Sooty Terns are considered but the attempts to explain away the necessity for Dr. Watson's conclusion that the birds were able to find their way back to their nesting ground over waters hitherto unknown to them, are by no means convincing. As regards the "return" migration Mr. Loomis discounts the part that physiological incentive plays in starting the birds back to their summer homes with such astonishing regularity of

date, but he offers no adequate alternative reason. One point that he does emphasize however deserves careful consideration, i. e. that in judging whether the young or adult birds migrate first we are often basing our conclusions upon cases of arrested migration— young birds which have dropped out of the flight exhausted, and not upon the migratory flight itself. In the case of land birds however, the entire flight has to pause somewhere and we should at our stations of observation have just as good an opportunity of seeing one part of it as another.

These are big problems however, and are only incidentally connected with the main subject of Mr. Loomis's report which will take its place as one of the notable contributions to the natural history of a group of birds as baffling as they are fascinating. The key to their ultimate systematic arrangement will be found in the acquisition of adequate series of breeding birds from all of the scattered islets to which they resort to rear their young. Until we in a measure secure such material a reasonable conservatism in the description of new forms is perhaps the wisest course to pursue.

The half-tone plates, beside the portraits already referred to, consist of photographs of Albatrosses on the Galapagos Islands and of numerous skins illustrating variations in coloration of adults and young. There is a detailed map of the Galapagos Group and another of the oceans of the world.

A previous publication, No. VIII of this series, by Mr. E. W. Gifford, issued August 11, 1913, covered the other families of water birds and the doves obtained by the expedition. As we understand that Mr. Gifford is now engaged in other lines of work we fear that he may not contemplate completing his report on the remaining families contained in the collection. If not it is sincerely to be hoped that the authorities of the California Academy will arrange for their study by some one of the California ornithologists as material of such value to ornithology should be reported upon without further delay.— W. S.

Murphy on Atlantic Oceanites.¹— This is the second contribution by the same author from the Brewster-Sanford collection of sea birds in The American Museum of Natural History. Mr. Murphy's conclusions are based on a study of more than two hundred skins of the Wilson's Petrel in the collections in the American Museum (including those of Dr. Jonathan Dwight and Dr. L. C. Sanford), the Brooklyn Museum, and the Museum of Comparative Zoölogy. This wealth of material makes his conclusions correspondingly convincing. In the section on plumages and molts, it is shown that the juvenal plumage is recognizably different from that of the adult, and that the molt and growth of wing quills in the adult causes a seasonal variation in the wing measurement quite sufficient

¹ A Study of the Atlantic *Oceanites*. By Robert Cushman Murphy. Bull. Amer. Mus. Nat. Hist., Vol. XXXVIII, pp. 117-146, pls. I-III, March 26, 1918.

to account for the different races of this bird, which have been claimed for the Atlantic. The taxonomic status, migration, breeding, occurrence in summer near New York, and food are taken up separately and in detail; and the paper is not only a satisfactory review of the species but will be found useful for comparison in work on the less well known forms of petrels. It is illustrated with interesting and attractive photographs from life by the author and Mr. Howard H. Cleaves.—J. T. N.

Cory's 'Catalogue of Birds of the Americas.'¹—The great activity in the study of neotropical birds during the past few years has rendered all of our catalogues out of date, while the most recent one dealing with South American birds, that of Brabourne and Chubb, is disappointing to the general student from the fact that the Central American species are necessarily omitted. A work therefore, such as Mr. Cory has begun, which is both up to date and at the same time covers the entire New World, is particularly welcome at this time. Under each species and subspecies are given the original reference with the type locality and one or more additional references to important papers, including always the first reference to the name as adopted in the list. Then follows a brief statement of the range, and the number of specimens contained in the Field Museum Collection, with the localities which they represent. In the case of species not described in the 'British Museum Catalogue' or in Ridgway's 'Birds of North and Middle America,' a brief description is given in a footnote. As to the species recognized, the author is guided by the two works above mentioned and by such monographic papers as have appeared subsequently. Recently described forms not considered in such works are admitted pending future judgment. This plan seems to us an admirable one as it is not biased by the views of one individual which in such a work must needs be of very unequal value.

The classification follows that of Bowdler Sharpe's 'Hand List of Birds' and the present part covers the families from the Owls to the Hummingbirds inclusive. This plan, of beginning the work with 'Part II' as the author explains, has been adopted with the idea of leaving to the last the families still to be treated by Ridgway in this 'Birds of North and Middle America' since the immediate treatment of these groups would have necessitated a very large number of footnote descriptions which can be avoided when reference to the above work is possible.

As in most works of this nature the author has found it necessary to propose a certain number of new forms. Of these we note the following: *Speotyto cunicularia minor* (p. 40); Boa Vista, Amazonia; *Aratinga cactorum perpallida* (p. 59), Ceara, Brazil; *Eupsittula pertinax margaritensis* (p. 63), Margarita Island; *Amazona amazonica tobagensis* (p. 83), Tobago;

¹ A Catalogue of Birds of the Americas. By Charles B. Cory. Part II, No. 1. Field Museum of Natural History, Publication 197. Zoölogical Series, Vol. XIII. Chicago, U. S. A., March, 1918. 8vo, pp. 1-315.

Urospatha martii olivacea (p. 108), Moyobamba, Peru; *Nephacætes niger guadeloupensis* (p. 143); Guadeloupe Island; *Lepidopyga goudoti zuliae* (p. 182), Rio Aurare, W. Venezuela; *Colibri iolatus brevipennis* (p. 210), Caracas, Venezuela.

While we have not had an opportunity to test out the accuracy of the references they appear to have been carefully compiled and we have little doubt but that Mr. Cory's 'Catalogue' will prove to be an indispensable reference work to all who study neotropical bird-life. It is well printed, the type well selected and the arrangement clear and easily understood. Let us hope that nothing may hinder the appearance of the succeeding parts upon which Mr. Cory is now engaged.—W. S.

McAttee's 'Sketch of the Natural History of the District of Columbia.'¹—There is no more important point in connection with the study of local natural history than for the student to have a clear idea of the relation of the fauna and flora to the environment and to appreciate just where his immediate locality stands in the classification of the larger zoögeographic or phytogeographic areas as well as to know where to find the local literature. We often find admirable discussions of the faunal relations of the western states or of remote foreign countries, but concise accounts of the general features controlling the distribution of plants and animals in the neighborhood of the larger centers of population in the eastern states, are much harder to obtain. Such a work, therefore, as Mr. McAttee has conceived and carried to completion deserves the highest commendation, and should stimulate the preparation of similar sketches for other centers of natural history study.

The first half of the "sketch" consists of an historical account of natural history study in the vicinity of Washington with local bibliographies for the botany, insects, other invertebrates, fishes, reptiles and batrachians, birds, mammals and early history of man. The second part discusses the distribution of life in the region under the following heads: 'The Piedmont Plateau and Coastal Plain as Faunal and Floral Provinces'; 'Magnolia Bogs near Washington, D. C., and their Relations to the Pine Barrens'; 'Other Types of Collecting Grounds in the District of Columbia Region'; and 'The Upper Potomac Region.' Following this is the index to the accompanying map with a bibliography of maps, historical works, etc., from which the locality names were compiled. The bird portion consists of an interesting historical sketch and a list of fifteen papers.

This publication we notice is the first of a new series — 'Bulletins' — of the Biological Society which, if the present issue is a sample of what is to come, will be well worth while.—W. S.

¹ A Sketch of the Natural History of the District of Columbia together with an Indexed Edition of the U. S. Geological Survey's 1917 Map of Washington and Vicinity. By W. L. McAttee. Bull. Biological Society, Wash., No. 1. May, 1918. pp. 1-142 with map (in folder). Price \$2.00, postpaid \$2.15.

Townsend's 'In Audubon's Labrador.'¹—Dr. Townsend has written so many interesting accounts of the life and natural history of the Labrador coast that we have come to associate his name instinctively with the wild, rugged north-land which he so delights to tell us about. To those who are familiar with his previous books the announcement of another volume will mean another treat in store for them. The volume in question however, has an added charm in the fact that the course of the writer on this trip followed that of Audubon on his famous voyage of 1833. Stops were made at the same points, the same localities were visited, the same birds were studied and in several instances descendants of the very people whom Audubon visited were met with.

The first chapter gives a brief resumé of Audubon's trip, with appropriate quotations from his diary and some account of the men who were associated with him. Then follows the narrative of the voyage of Dr. Townsend and his companion Mr. Harold St. John, the botanist, from Natashquan to Blanc Sablon, while two chapters on the conservation of wild life in Labrador, and on the protection of the Eider, the latter of which appeared originally in 'The Auk' for 1904, complete the main text of the volume. There is however an appendix consisting of letters from George C. Shattuck, Jr., who accompanied Audubon, from his father, from B. Lincoln, brother of another member of the party, and from Audubon himself, all of which relate to the famous expedition. Dr. Townsend's narrative is written in a delightful style giving one a vivid picture of the country and its inhabitants, while the pages teem with ornithological matter including many original observations on bird habits.

The illustrations are half-tone reproductions of photographs of localities, general scenery, birds and plants as well as portraits of many of the persons mentioned in the text. A map of the coast of Labrador with the routes of the two expeditions recalls to mind the comparatively small portion of the coast which Audubon visited, and the fact that it lay entirely on the southern side of the peninsula bordering on the Straits of Belle Isle and the Gulf of St. Lawrence. A good index completes this attractive volume.—W. S.

Pearson's 'Tales from Birdland.'²—With the constantly increasing interest in bird study there is a steady demand for bird books, not only for the advanced student, but for the little folks as well, and probably there is no better way to arouse a lasting interest in birds in the child than to tell him stories which are woven about the personality of some imaginary bird hero. As a contribution to this class of bird books Mr. Pearson has just

¹ *In Audubon's Labrador.* By Charles Wendell Townsend, M. D., with illustrations and a map. Boston and New York, Houghton Mifflin Company, 1918. pp. i-xii + 1-354. Price \$2.50 net.

² *Tales from Birdland.* By T. Gilbert Pearson. Illustrations by Charles Livingston Bull. Doubleday, Page & Company, 1918. pp. 1-237. Price 70 cts. postpaid.

published a little volume under the above title describing the experiences of 'Hardheart, the Gull'; 'Longtoe, the Gypsy Robin'; 'Jim Crow of Cow Heaven' and other similar celebrities, ten in all, into which he has managed to incorporate a great deal of valuable suggestion regarding bird protection without destroying the interest of the stories. The book should prove a valuable one both as a story book and for school reading.—W.S.

Mathews' 'Birds of Australia.'¹—This attractive number of Mr. Mathews' great work includes the Frogmouths, Rollers and part of the Kingfishers, groups which the author prefers to regard as distinct orders rather than as families of the Coraciiformes. We notice however that through inadvertence the order heading for the 'Coraciiformes' which should precede the account of the genus *Eurystomus* has been omitted so that this genus would appear to be included in the 'Podargiformes.'

The accounts of the life and habits of the Frogmouths are very interesting while the peculiar poses shown in the plates illustrate how much protective coloration and rigidity of posture figure in rendering them inconspicuous. We note the following new forms: *Podargus strigoides centralia* (p. 34), Central Australia; *P. s. capensis* (p. 35), Cape York; *Aegotheles cristata tasmanica* (p. 65), Tasmania; *A. c. olivae* (65), Cairns, N. Queensland; *A. c. centralia* (p. 67), Stevenson's River; *A. c. melvillensis* (p. 67), Melville Island; *Alcyon azurea wallaceana* (p. 94), Aru Isls.; *A. a. distincta* (p. 94), Humboldt Bay, New Guinea; and *Micralcyon pusilla yorkei* (p. 103) Cape York.

In considering the Kingfishers five new genera are proposed as follows: *Cyanoceyx* (p. 96), type *Ceyx lepida*; *Ceycalcyon* (p. 97), type *C. cyanopectus*; *Argyroceyx* (p. 97), type *C. argentata*; *Ispidella* (p. 97), type *Halcyon leucogaster* and *Ceycoides* (p. 98), type *C. madagascariensis*. The discussion on the relative value of color patterns and details of structure is interesting and the points brought out are well worthy of the attention of systematists. It might be mentioned in this connection that a similar discussion based largely upon the same group of species was published by the reviewer in 1912, in a paper which appears to have been overlooked by Mr. Mathews (Journal Acad. Nat. Sci. Phila., Vol. XV, pp. 313-319).—W. S.

Lincoln's 'The Woodpeckers of Colorado.'²—This little pamphlet is published by the Colorado Mountain Club and is intended to give to the layman concise information on the habits and appearance of the woodpeckers of the state. A preliminary sketch of the habits and structure of woodpeckers in general is followed by detailed accounts of the nine Colorado

¹ The Birds of Australia. By Gregory M. Mathews. Vol. VII, Part I, pp. 1-112. March 4, 1918.

² The Woodpeckers of Colorado. By F. C. Lincoln. Illustrated. Published by The Colorado Mountain Club. Publication No. 6. Denver, Colorado. December 8, 1917. pp. 1-22.

species. The illustrations consist of photographs of specimens and groups in the Colorado Museum of Natural History. A good plan for showing the actual and relative size of the species consists of a photograph of a series of skins, one of each species, arranged side by side on a sheet of paper ruled with horizontal lines one inch apart. The pamphlet is well printed and forms an attractive and useful publication.—W. S.

Cassinia for 1917.¹—The Delaware Valley Club's annual publication appears as usual in April covering the proceedings of the year 1917. The leading article is a biographical sketch of Samuel Wright, one of the active members of the Club who died early in the year, by Witmer Stone, with portrait. Then follows an admirable review of the summer bird-life of Pocono Lake, Pa., by John D. Carter; one of those boreal 'islets' in the mountainous part of the state which for many years past has been a favorite resort for several members of the Club. The nest of the Golden-crowned Kinglet found by Mr. Carter in 1916 was one of the latest discoveries, the first actual nesting record of this species for the state. Samuel Scoville, Jr., writes of the influx of Evening Grosbeaks which marked the winter of 1916-1917 and brought this species within the Philadelphia district for the first time. The usual migration report based upon the schedules of fifty-one observers, and the abstract of proceedings complete the number.

The average attendance at the sixteen meetings held during the year was twenty-one, notwithstanding the fact that twenty-two of the members are in the national service.—W. S.

Bangs and Penard on a Collection of Surinam Birds.²—This paper is based on a collection of 2000 skins representing 301 species which was made for the Museum of Comparative Zoölogy under the direction of Mr. A. P. Penard, of Paramaribo, the greater part of the specimens being obtained in the immediate vicinity of the city.

There is a brief introduction in which the physical features of Surinam are described, the country being divided into three parallel zones, the alluvial lowlands, the savanna lands and the highlands stretching back to the Tumuchumac Mountains of Brazil. Much of the last area is unexplored and according to the authors the extreme difficulties to be overcome make it unlikely that any extensive work will be done there for some time to come.

Under many of the species there is a mere mention of the specimens contained in the collection while under others there is considerable dis-

¹ *Cassinia: A Bird Annual*. Proceedings of the Delaware Valley Ornithological Club of Philadelphia. 1917 (issued April, 1918). pp. 1-74. Price 50 cents. Address care of The Academy of Natural Sciences, Philadelphia.

² *Notes on a Collection of Surinam Birds*. By Outram Bangs and Thomas E. Penard. *Bull. Mus. Comp. Zool.*, Vol. LXII, No. 2. April, 1918. pp. 25-93.

cussion of relationships and nomenclature, and incidentally comment is made upon various species from other parts of South and Central America. Five new forms are described from Surinam and thirteen from other places — Panama, Mexico, St. Vincent, Trinidad, etc., while two new genera are erected; *Helicolestes* for *Falco hamatus*, and *Hypocnemoides* for *Hypocnemis melanopogon*. Thirteen names not in current use have been revived and recognized.

The paper is a valuable contribution to the ornithology of a region upon which comparatively little has been written in late years.— W. S.

Riley on a New Bullfinch from China.¹— A single specimen of a Bullfinch from Peking recently presented by Mr. Geo. D. Wilder to the U. S. National Museum proves to belong to an undescribed race allied to *Pyrrhula erythraca* from Sikhim but widely separated geographically. Mr. Riley names it in honor of its discoverer, *P. e. wilderi*.— W. S.

McGregor on New or Noteworthy Philippine Birds.²— This contribution consists of notes on twenty-two species of birds Philippine, including an additional record of the Monkey-eating Eagle, *Pithecopaga jeffreyi*, an account of a living specimen of *Leucotreron merrilli* with a colored plate. For this species the new subgeneric name *Neoleucotreron*, (p. 2) is proposed. The other notes deal mainly with terns, shore-birds and swifts.— W. S.

Gabrielson on the Birds of Clay and O'Brien Counties, Iowa.³— This list of 136 species is the result of a number of field trips during several years prior to 1912. It is not presented with any idea of its being complete but mainly because conditions in the last few years have so altered the region that any record becomes of great interest. Extensive draining, the author tells us has destroyed almost all the swamps and ponds, and he goes on to say: "Where in 1909 and 1910 cat tails and other aquatic vegetation, teeming with bird life, flourished, solid fields of corn now stand and the birds have vanished." Unfortunately this is not the only spot where such changes are going on and he who saves for posterity some record of the original faunal conditions deserves the highest commendation.— W. S.

Recent Papers on Bird Preservation.— The Annual Report of the State Ornithologist of Massachusetts⁴ is as usual full of interesting matter to the conservationist. We learn with regret of the depletion of the Heath

¹ A New Bullfinch from China. By J. H. Riley. Proc. Biol. Soc. Wash., Vol. 31, pp. 33-34. May 16, 1918.

² New or Noteworthy Philippine Birds, II. By Richard C. McGregor. Philippine Jour. of Science, D. Vol. XIII, No. 1, pp. 1-19. January, 1891.

³ A List of the Birds of Clay and O'Brien Counties, Iowa. By Ira N. Gabrielson. Proc. Iowa Acad. of Sciences, Vol. XXIV, 1917. pp. 259-272.

⁴ Tenth Annual Report of the State Ornithologist of Massachusetts. By E. H. Forbush. pp. 1-27. 1918.

Hen colony on Martha's Vineyard by fires which swept the island in May 1916. Starlings come in for a good deal of attention and in connection with the roosting of this species and the Blackbirds in shade trees, which habit often proves a nuisance, a novel method is described for driving them away. A heavy pad is fastened to the trunk of a tree which is then struck several times with a large sledge hammer. By repeating this for several nights the birds become discouraged and leave.

Mr. W. S. Taylor¹ has prepared a bulletin on the Bobwhite in Texas, which however, is much broader than its title would imply, being an admirable plea for the protection of game in the state, with information regarding bird conservation work in the schools and lists of publications available for study.

The U. S. Biological Survey has issued two pamphlets recently, one by the late Prof. Beal² dealing with the food habits of the swallows which follows the plan of other similar publications issued by the Survey. The large numbers of dragonflies eaten by the Purple Martin leads the author to think that the birds must search especially for them. As a matter of fact along the coast of New Jersey where the Martins nest regularly they forage naturally over the great expanse of salt marshes where dragonflies abound, and it would seem difficult for the birds to avoid catching them. The other paper referred to is by Dr. Oberholser³ on the breeding grounds of the water fowl on the Great Plains. This is a plea for the protection of the few suitable breeding grounds still remaining for these birds if we would save them from extermination. The Sand-Hill Region of Nebraska and the Lake Region of the Dakotas are especially considered as offering ideal conditions.

The admirable 'Biennial Report of the Department of Conservation of Louisiana',⁴ contains the reports of E. A. McIlhenny, Superintendent of the State Game Farm and of S. C. Arthur, State Ornithologist which are full of valuable information. The fact that Night Herons, or 'gros bees' as they are locally termed, are regarded as legitimate game in the state and form an important item of food for the residents of many of the bayous will be news to most persons outside the boundaries of Louisiana.

Wallace Craig⁵ has recently prepared a valuable series of directions for making a wire bird cage which will be welcome to many who have temporary use for some sort of receptacle in which live birds may be kept safely.—W. S.

¹ The Bobwhite. By W. S. Taylor. Univ. of Texas Bulletin, No. 1748. August, 1917.

² Food Habits of the Swallows. By F. E. L. Beal. U. S. Dept. of Agriculture, Bull. 619. March 8, 1918. pp. 1-28.

³ The Great Plains Waterfowl Breeding Grounds and their Protection. By Harry C. Oberholser. Yearbook of the Dept. of Agriculture 1917. Separate from the No. 723, pp. 1-10.

⁴ Biennial Report of the Department of Conservation State of Louisiana from April 1, 1916 to April 1, 1918. pp. 1-180. M. L. Alexander, Commissioner.

⁵ Directions for Making a Metal Bird-Cage. By Wallace Craig. Reprint from The Avicultural Magazine. August, 1917, pp. 1-6.

Bird Enemies of Brine Shrimps and Alkali Flies.—Sweeping statements based on negative evidence are dangerous, and no exception may be noted for one which claims that "enemies play no part in keeping down the numbers of *Artemia* (Brine Shrimps), or of *Ephydra* (Alkali Flies) in the larval stage."¹ Dr. Alex. Wetmore, of the Biological Survey, who has had considerable experience about Great Salt Lake to which locality the quoted assertion relates, has pointed out² that *Artemia* and *Ephydra* are by no means free from enemies. Shovellers, Lesser Scaups, Goldeneyes, Green-winged Teal, Wilson's and Northern Phalaropes, Avocets and Black-necked Stilts all feed extensively upon both of these animals. But for the fact that stomach analyses have not been made of other birds collected at the same place, it would undoubtedly be possible to add the names of a number of species to this list. Dr. Wetmore states that "the toll taken by birds from the brine shrimp and alkali fly larvæ and pupæ during the course of a season constitutes a mass of individuals almost beyond comprehension. . . . The immense number of these creatures . . . must be attributed to the large number of offspring produced rather than to an absence of enemies."

If misinformation and mis-statements based thereon, are as prevalent throughout biological science, as they are in the field that has been most cultivated by the reviewer,—the food-habits of birds—the way of the student toward truth is indeed beset with pitfalls and obstacles, almost impassable.—W. L. M.

Bird Enemies of the Varying Hare.—Mr. Norman Criddle in connection with an account of the destructiveness of snowshoe or bush rabbits, points out the value of their bird enemies. He states: "Three birds are prominent in the destruction of rabbits. The Goshawk which is also very destructive to grouse; both eagles are largely rabbit feeders, and lastly there are the Great Horned Owls. These owls have unfortunately been reduced much by man of late years, though there are no birds that take a heavier toll of bush rabbits. Preserve these birds and we should in time reduce rabbits very materially and by this means at least aid in conserving our forests."³ (p. 262.)

To the birds named by Criddle as enemies of bush rabbits must be added the Great Gray Owl and the Snowy Owl. Mr. E. A. Preble reported⁴ that the stomachs of the latter species collected by him almost invariably contained the remains of varying hares.—W. L. M.

Curious Hoarding Habits of Birds.—Dr. L. O. Howard reports⁵ the recovery of moonstones, kernels of corn and wheat, and small acorns

¹ Vorhies, Chas. T. "Notes on the Fauna of Great Salt Lake. Amer. Nat. 51. p. 498. August, 1917.

² Amer. Nat. 51, pp. 753-755. December, 1917.

³ Varying hares of the prairie provinces. Agr. Gaz. Canada, Vol. 4. No. 41. April 1917.

⁴ N. A. Fauna, 27, 1908, p. 375.

⁵ Entomological News, 29, No. 1, January, 1918, pp. 15-16.

from cocoons of Emperor moths (*Samia cecropia*). The probability is that these objects are placed in the cocoons by birds addicted to hoarding. No very definite observations on the agents have been made, the most satisfactory being those of Dr. Alex. Wetmore of the Biological Survey who has seen Bluejays stuff grains of corn and small acorns into large cocoons.—W. L. M.

Bird Enemies of Tree Hoppers (Membracidae).—In an admirable paper on the 'Biology of the Membracidae of the Cayuga Lake Basin,' Dr. W. D. Funkhouser discusses the relations of birds to these insects. He presents records of seven definitely named species of birds feeding on tree hoppers, in addition to warblers (various species) and thrushes (various species), which we wish were particularized.

The greatest interest in connection with the records relates to the alleged protective adaptations of Membracids. Dr. Funkhouser states:

"Very few of the local species are molested by birds. A few species of birds have been observed feeding on the nymphs but usually neglecting the adults, the latter being probably sufficiently protected from bird enemies by the hard pronotum and sharp processes. Various species of adult membracids have been thrown to birds in captivity; in general these have been refused but in a few cases they have been picked up only to be dropped again. Evidently the strong pronotal processes, which are often sharp and hard enough to pierce the skin if the insect is seized suddenly, are unpalatable and irritating." (pp. 416-7).

In these remarks Dr. Funkhouser evidently has fallen, probably unconsciously, into the habit of speculation, which selectionist doctrine has almost ingrained in biologists and especially in biological teaching. That Dr. Funkhouser does not accept these views at face value is shown by the following further quotation from his paper: "Poulton * * * has called attention to the fact that it is hard to deny the theory of protective resemblance when the same object is accomplished by both the nymph and the adult but in different ways. In the case of the local forms mentioned above, the nymph imitates the uncurling leaf or the irregular bark by spines on both thorax and abdomen—chiefly the latter—while the adult imitates an entirely different part of the plant by the development of an entirely different part of the body. On the other hand, some of the commonest of the local species of Membracidae in no respect seem to resemble any part of the host on which they live, although their shapes are decidedly peculiar. The high dorsal crest of the *Telamonas*, for example, can only by a stretch of the imagination be made to resemble any peculiarity of the oak twig on which the insects rest, and in fact they are very conspicuous on their host. Likewise the *Ceresas*, perhaps the most widely distributed genus in the basin, are plainly seen when in their natural surroundings, and the two prominent suprahumeral horns do not in the least resemble plant structures with which the insects are associated. The answer of

the natural selectionist might be that at some previous time such adaptation had held, and this of course is unanswerable since we have no way of knowing what host plants may have been the home of the insects in bygone periods; but it is interesting to note that the genera *Ceresa* and *Telamona*, which now show little protective resemblance to parts of their hosts, are more numerous and apparently maintain an existence with greater ease than do those species that show very excellent protective resemblances.

"It is unnecessary to take up separately each of the local forms in this respect. For each it is possible to suggest an explanation, reasonable or otherwise according to the degree of imagination possessed. But in general it must be said for the local forms, as for the family as a whole, that such speculation merely lies in the realm of conjecture." (pp. 419-20).

The realm of conjecture is a vast domain, illimitable in fact, otherwise we should have, under the necessity of inventing a new infinity, to accommodate the unrestrained theorizing of the selectionists. Contact with the hard facts of what adaptations do and do not accomplish invariably removes the young and plastic naturalist from the thrall of protective adaptation doctrine. The reviewer has watched the course of this process in a number of cases of men beginning the work of analyzing the contents of bird stomachs. First, surprise is manifested that birds should eat things that college teaching has pronounced protected, then as other cases occur from time to time the old belief is entirely cast aside, and finally long experience leads to the conclusion that in their respective ecological niches birds feed practically indiscriminately.

To return to the Membracids, we must conclude that their protective adaptations have no especial significance in foiling predators. In Biological Survey investigations tree hoppers have been found in the stomachs of more than 120 species of birds, and in numbers up to 26 individuals in a single stomach. They have been found in 15 or more stomachs of each of the following species: Great-crested and Ash-throated Flycatchers, Meadow-lark, Brewer's Blackbird, Bullock's Oriole, English Sparrow, Cliff Swallow, Red-eyed, Solitary and Warbling Vireos, Bush-tit, and Ruby-crowned Kinglet. The tree hoppers identified belong to 21 different genera indicating that no partiality is shown. Membracids with the most prominent horns and spines of any in our fauna, as those of the genera *Campylenchia*, *Platycotis*, *Ceresa* and *Platycentrus* are taken with the rest.—W. L. M.

The Ornithological Journals.

Bird-Lore. XX, No. 2. March-April, 1918.

Some Notes on Martin Colonies. Five contributions from as many writers.

Notes on the Tree Swallow. By Verdi Burtch.

The Song Sparrow. A Poem by Edw. J. Sawyer.

How to Make and Erect Bird-Houses. By Hubert Prescott.

Photography of Feeding Stations. By C. Breder, Jr.

Holboell's Grebe in Connecticut. By Wilbur F. Smith.

The Migration of certain Tanagers and Swallows is considered by Dr. Oberholser while Dr. Chapman treats of the plumages of the former, with a colored plate by Fuertes.

The Educational Leaflet describes the Raven.

Bird-Lore. XX, No. 3. May-June, 1918.

Three Years After. By Mable Osgood Wright.—An extremely interesting report on the condition of the Connecticut Audubon Society's 'Birdcraft Sanctuary.' During the season of 1917 there were 102 nests built on the grounds, belonging to 24 species. It was found necessary to destroy the English Sparrows, Starlings, Crows and Purple Grackles which visited the sanctuary. Traps with padded jaws were set for hawks, and all harmless species as well as owls were liberated. Northern Shrikes were found to be a serious menace to winter birds and striped snakes to nesting sparrows. The most serious enemy to the birds was the domestic cat, 107 of which were caught.

The Whip-poor-will. By Melicent E. Numason. A good account of its breeding.

My Nuthatch Tenants and a Pair of Red-headed Ruffians. By R. W. Williams.

The Waxwings and Phainopepla are treated in the usual papers on migration and plumage, with an excellent color plate by Fuertes.

The Condor. XX, No. 2. March-April, 1918.

In Memoriam: Lyman Belding. By Walter K. Fisher.

The Salt Marsh Yellowthroats of San Francisco. By George W. Schussler.

A Return to the Dakota Lake Region. By Florence M. Bailey.

Six Weeks in the High Sierras in Nesting Time. By Milton S. Ray.

The Scarlet Ibis in Texas. By R. A. Sell.—The unearthing of this important record was in part the result of criticism of a supposed sight record published in 'The Condor,' Vol. XIX, p. 46.

Both in this case and in that of the supposed Harpy Eagle published recently in 'The Auk' it would seem that the best way to treat a doubtful record is to give it publicity in some reliable journal and someone will make it his business to supply the information that is lacking!

The Subspecies of the Oregon Jay. By H. S. Swarth.

Bird Notes from Forrester Island, Alaska. By George Willett.

Seven New or Noteworthy Birds from East Central California. By Joseph Grinnell.—Two forms are described as new; *Sitta carolinensis tenuissima* (p. 88) from the Panamint Mountains and *Hylocichla guttata polionota* (p. 89), from the White Mountains.

The Condor. XX, No. 3. May-June, 1918.

The Short-eared Owl in Saskatchewan. By Walter A. Goeltz.

Notes on the Nesting of the White-throated Swift in Colorado. By W. C. Bradbury.—An excellent account with numerous photographs of habitat, etc.

A Return to the Dakota Lake Region. By Florence M. Bailey.—Birds of the Unbroken Prairie.

Costa's Hummingbird — Its Type Locality, Early History and Name. By T. S. Palmer.—A valuable historical article showing that the type must have been taken at Magdalena Bay, Lower California.

The Distribution of the Subspecies of the Brown Towhee (*Pipilo crissalis*). By H. S. Swarth. A valuable resume.

The Wilson Bulletin. Vol. XXX, No. 1. March, 1918.

A Strange Case of Hybridism. By F. C. Lincoln.—Prairie Chicken and Sharp-tailed Grouse. The author will find two similar hybrids described in early volumes of the 'Nuttall Bulletin' and 'The Auk.'

Birds Observed near Minco, Central Oklahoma. By Alexander Wetmore.

Louisiana Bird Refugees. By Alfred M. Bailey.

Harris Hawks in Ohio. By Thomas M. Earle.

The Oologist. XXXV, No. 6. June, 1918.

Notes on Birds Observed at and near St. Teresa, James Island, Florida, in the Summer of 1901. By R. W. Williams.—An annotated list of 59 species.

Observations of Swainson's Warbler. By A. J. Kirn.—Breeding at Copan, Washington Co., Oklahoma.

The Ibis. X Series, VI, No. 2. April, 1918.

On Birds Recently Collected in Siam. Part II. Passeres. By C. Boden Kloss. Concluded.—The following are described as new: *Volvocivora koratensis* (p. 193) East Siam; *Chloropsis aurifrons inornatus* (p. 198), East Siam; *Otocompsa flaviventris minor* (p. 200) S. W. Siam; *Mizornis rubricapilla connectens* (p. 206); Lat. 10 N., Siam.; *Dicaeum cruentatum siamensis* (p. 216), E. Siam; *Chalcoparia singalensis koratensis* (p. 218) E. Siam; *Dicrurus annectens siamensis* (p. 226); Koh Lak, S. W. Siam.

Some Additions and Corrections to the B. O. U. List of British Birds. By the Committee.

A Note on the Structure of the Feather. By John S. Gladstone.—Structure of the 'tegmen' or ventral ridge of the feather ramus.

The Birds of the Isle of May: A Migration Study. By Evelyn V. Baxter and Leonora J. Rintoul.—Valuable data on the relation of migration to winds, and full list of species observed.

Notes on Some Birds of the Bessarabian Steppe. By Maud D. Haviland.

Further Notes on the Birds of Macedonia. By Alexander G. L. Sladen.

Bulletin of the British Ornithologists' Club. CCXXXI. March 4, 1918.

Mr. W. L. Slater described the following: *Milvago chimango temucoensis* (p. 43), Palal, South Chile; *Micrastur plumbeus* (p. 44), Carondelet, Esmeraldas, Ecuador; and *Geranoospiza niger balzarenis* (p. 45), Balzar Mts., Ecuador.

Mr. Charles Chubb described the following: *Grallaria punensis* (p. 47), South Peru; *Corythopsis torquata sarayacuensis* (p. 48), Sarayacu, Ecuador; *Aramides cajanea salmoni* (p. 48), Antioquia, Colombia.

Mr. G. M. Mathews described: *Pomatostomus ruficeps parsonsi* (p. 48), Pungonda, S. Australia.

Bulletin of the British Ornithologists' Club. CCXXXII. April 2, 1918.

Mr. P. F. Bunyard described the eggs and down of *Nyroca nyroca*.

Mr. Charles Chubb described as new: *Planesticus fredericki* (p. 53), Bartica, British Guiana; *P. fumigatus abariensis* (p. 53), Abary River, British Guiana and *P. f. ochro-fulvescens* (p. 54), Trinidad.

Bulletin of the British Ornithologists' Club. CCXXXIII. April 30, 1918.

Dr. Hartert described five new subspecies of *Rhipidura* and an Oriole, *O. luteolus thaiaceus* (p. 63), the latter from Siam.

S. Clark described a new Pigeon from British Somaliland, *Columba oliviae* (p. 61).

E. C. Stuart Baker described *Garrulax moniliger fuscata* (p. 64), Tavoy, Burma; *Graucalus macei siamensis* (p. 69), Siam, and *Aethiopsar fuscus infuscatus* (p. 70), Lower Chindwin.

British Birds. XI, No. 10. March, 1918.

Notes on the Kingfisher (*Alcedo ispida ispida*). By W. Rowan.

A Note on the Nesting of the Swallow. By J. H. Owen—Important notes on the appearance and development of the young, nestling period etc.

The Moults and Sequence of Plumages of the British Waders. By Annie C. Jackson.—The Knot and Dunlin.

British Birds. XI, No. 11. April, 1918.

Field Notes on the Marsh Warbler. By Lieut. D. H. Meares—With colored plate.

Ornithological Notes from Norfolk for 1917. By J. H. Gurney.

British Birds. XI, No. 12. May, 1918.

The Effect of the Winter of 1916-1917 on Our Resident Birds. By F. R. C. Jourdain.

The "British Birds" Marking Scheme. Progress for 1917. By H. F. Witherby.

Avicultural Magazine. IX, No. 4. February, 1918.

The White Pelicans of Oregon. By Mrs. C. E. Maud.—On Klamath Lake.

Some American Quails. By P. A. Pichot.—Scaled and Massena Quails and Bobwhite in captivity.

The Breeding of the Mexican Black-breasted Quail (*Colinus pectoralis*). By W. S. Baily.

Birds of the Gambia. By E. Hopkinson.

The Pigeon Hollandais. By Graham Renshaw.—An account of the known specimens of the extinct *Alectroenas nitidissima*.

The Emu. XVII, Part 4. April, 1918.

Notes on North-western Birds. By F. L. Whitlock.

Ornithological Notes from North Queensland. By Dr. W. Macgillivray. Part III.—Concludes this valuable annotated list.

Alike in Difference. By E. J. Banfield.— Migration notes on the Nutmeg Pigeon and Metallic Starling.

Further Notes on Cormorants, their Food, Temperatures &c. By Capt. S. A. White.

The Ground Parrot (*Pezoporus formosus*). By A. H. E. Mattingley.

Notes on Some of the Birds met with in the Neighborhood of Pungonda. By E. Ashby.

Revue Francaise d'Ornithologie. No. 105. January, 1918. [In French].

On a Small Collection of Birds from French West Africa. By A. Mene-gaux.

Revue Francaise d'Ornithologie. No. 107. March, 1918.

The Embryonic Life of the Ostrich. By M. Aubry.— Illustrated.

On *Rhamphocorys clot-bey*. By P. Bede.

Ardea. VI, Nos. 3-4. December, 1917. [In Dutch.]

Ornithological Observations in Holland. By E. D. Van Oort.

Results of Bird-ringing at the Leyden Museum. By E. D. Van Oort.

El Hornero. I, No. 1. October, 1917. [In Spanish.]

The Ornithological Society of La Plata.

The Swifts of the Republic of Argentina. By R. Dabbene.

Some Birds of Puerto Deseado, Patagonia. By M. Doello-Jurado.

Formation of the 'Gabinete del Rey' in 1769. By Felix F. Outes.

Ornithological Reflections. By Manuel Selva.— On classification according to habitat.

Some Notes on a Collection of Birds from the Island of Martin Garcia. By R. Dabbene.

Ornithological Articles in Other Journals.¹

MacMillan, Donald B. Food Supply of the Smith Sound Eskimos. (Amer. Mus. Journal March, 1918.) — Data on the use of birds and eggs.

Roosevelt, Theodore. Common Sense and Animal Coloration. (*Ibid.*)

Lang, Herbert and **Chapin**, James P. Nesting-Habits of the African Hornbill. (*Ibid.*, April, 1918.) — An interesting account with illustrations.

Forbush, Edward H. The Heath Hen of Martha's Vineyard. (*Ibid.*) — Illustrated with photographs by George W. Field.

Vreeland, Frederick K. How a Ruffed Grouse Drums. (Bull. Amer. Game Protective Asso., January, 1918.) — An excellent series of photographs of the bird 'in action.'

¹ Some of these journals are received in exchange, others are examined in the library of the Academy of Natural Sciences of Philadelphia. The Editor is under obligations to Mr. J. A. G. Rehn for a list of ornithological articles contained in the accessions to the library from week to week.

Munro, J. A. Notes on the Birds in an Okanagan Orchard. (Ottawa Naturalist, January, 1918.)

McWilliam, J. M. Notes on Some of the Birds of Bute (Scotland). (Scottish Naturalist, February, 1918.)

Evans, William. References to the Early Bird-Life of the Isle of May. (*Ibid.*, March, 1918.)

Oberholser, H. C. List of the Birds Observed at Swan Lake, Minnesota, July 25-27, 1917. (Fins, Feathers and Fur, No. 13, March, 1918.)

Oberholser, H. C. Mutanda Ornithologica III. (Proc. Biol. Soc. Wash. XXXI, May 16, 1918.)—Several changes in names preoccupied viz. *Hæmatopus quoyi* Brab. & Chubb becomes *H. townsendi* Aud.; *Totanus fuscus* Linn. becomes *T. maculatus* (Tunstall); *Eos reciniata* (Bechst.) becomes *E. guenbyensis* (Scop.); *Leucotreron gularis* Q. & G. becomes *L. epia* (p. 48) nom. nov. and *Gymnopelia erythrothorax* (Meyen.) becomes *G. cecilæ* (Less.).

Grinnell, Joseph. The Subspecies of the Mountain Chickadee. (Univ. of Cal. Publ. Zool. XVII, No. 17, May 4, 1918). Besides the typical form of the Rocky Mts., Dr. Grinnell recognizes three others: *Penthestes g. inyoensis* (p. 509), Panamint Mts., eastern California; *P. g. baileyi*, Mountains of southern California and *P. g. abbreviatus* (p. 510), Siskiyou Mountains, northern California.

Foster, Arthur H. A List of Birds which have occurred in North Hertfordshire, with Notes on each Species. (Trans. Hertfordshire Nat. Hist. Soc. and Field Club, XVI) — An excellent British 'local list.'

Coward, T. A. Observations on the Nesting of the Palm Swift, made by Arthur Loveridge in German East Africa. (Proc. Manchester Lit. and Philos. Soc., 1916-1917.)

Gudger, E. W. An Old Record of Albino Turkey Buzzards. (Science, No. 1213.)

Oberholser, H. C. Albino Turkey Buzzards. (Science, No. 1221).—Explains that the supposed albinos were in all probability King Vultures.

Publications Received.—**Bangs, Outram and Penard, Thomas E.** Notes on a Collection of Surinam Birds. (Bull. Mus. Comp. Zool., LXII, No. 2, pp. 25-92, April, 1918.)

Beal, F. E. L. Food Habits of the Swallows. A Family of Valuable Native Birds. Bull. No. 619, U. S. Dept. Agriculture, March 8, 1918, pp. 1-28.

Chubb, Charles. Notes on *Embernagra platensis* and its Allies, with Description of a New Species. (The Ibis, January, 1918, pp. 1-10.)

Craig, Wallace. Directions for Making a Metal Bird-Cage. (Avicultural Magazine, August, 1917. Repaged 1-6.)

Cory, Charles B. Catalogue of Birds of the Americas, Part II, No. 1. Field Mus. of Nat. Hist., Publ. 197, Zool. Series. Vol. XIII, March, 1918, pp. 1-315.

Forbush, Edw. H. (1) The Heath Hen of Martha's Vineyard. (Amer. Museum Jour., Vol. XVIII, No. 4, pp. 278-285, 1918.) (2) Tenth Annual

Report of the State Ornithologist [of Massachusetts] for the Year 1917, pp. 1-27, December, 1917.

Gabrielson, I. N. A List of the Birds Observed in Clay and O'Brien Counties, Iowa. (Proc. Iowa Acad. Sci., Vol. XXIV, 1917, pp. 259-272.)

Lincoln, F. C. The Woodpeckers of Colorado. Publ. No. 6, The Colorado Mountain Club, Denver, Colo., December 8, 1917, pp. 1-22.)

Loomis, L. M. A Review of the Albatrosses, Petrels, and Diving Petrels. Publ. No. XII, Exped. of the California Acad. of Sciences to the Galapagos Islands, 1905-1906. Proc. Cal. Acad., Fourth Series, Vol. II, Part II, No. 12, pp. 1-187, pls. 1-17, April, 1918.

Mathews, G. M. The Birds of Australia. Vol. VII, Part I, March 4, 1918, pp. 1-112.

McAtee, W. L. A Sketch of the Natural History of the District of Columbia, together with an Indexed Edition of the U. S. Geological Survey's 1917 Map of Washington and Vicinity. Bull. Biol. Soc. Wash., No. 1, May, 1918, pp. 1-142. \$2.00, post paid, \$2.15.

McGregor, R. C. New or Noteworthy Philippine Birds. II. (Phil. Jour. Sci., Vol. XIII, No. 1, Sec. D, January, 1918, pp. 1-19, pls. 1-3.)

Murphy, R. C. A Study of the Atlantic Oceanites. (Bull. Amer. Mus. Nat. Hist., XXXVIII, Art. IV, pp. 117-146, March 26, 1918.)

Oberholser, H. C. The Great Plains Waterfowl Breeding Grounds and their Protection. (Yearbook U. S. Dept. Agric., 1917. Repaged, 1-10.)

Pearson, T. G. Tales from Birdland. 12 mo. Doubleday, Page & Company, 1918. pp. 1-237. 70 cts., postpaid.

Riley, J. H. A New Bullfinch from China. (Proc. Biol. Soc. Wash., Vol. 31, pp. 33-34, May 16, 1918.)

Shufeldt, R. W. Anomalies of the Animal World. Part VIII. (Scient. Amer. Suppl., No. 2202, March 16, 1918.)

Taylor, W. S. The Bobwhite. Bull. 1748, Univ. Texas, August 25, 1917, pp. 1-26.

Townsend, C. W. In Audubon's Labrador. Small 8vo, pp. 1-354. Houghton, Mifflin Company. \$2.50 net.

American Museum Journal, XVIII, Nos. 3 and 4, March and April, 1918.

Ardea, Vol. VI, No. 3-4.

Avicultural Magazine, (3), IX, Nos. 5, 6, and 7, March-May, 1918.

Biennial Report of the Department of Conservation [of Louisiana] from April 1, 1916 to April 1, 1918.

Bluebird, X, No. 5, April, 1918.

Bird-Lore, XX, Nos. 2, and 3, March-April and May-June, 1918.

Bird Notes and News. VIII, No. 1, Spring, 1918.

British Birds, XI, Nos. 10, 11 and 12, March-May, 1918.

Bulletin British Ornithologists' Club, Nos. CCXXXI, CCXXXII, and CCXXXIII. March 4, April 2 and 30, 1918.

Bulletin American Game Protective Association, Vol. 7, Nos. 1 and 2, January and April, 1918.

- Bulletin** Charleston Museum, XIV, Nos. 3 and 5, March-May, 1918.
California Fish and Game, Vol. 4, No. 2, April, 1918.
Cassinia, Proc. Delaware Valley Ornithological Club, 1917.
Condor, The, XX, Nos. 2, and 3, March-April, May-June, 1918.
Current Items of Interest, No. 35, February 21, 1918.
El Hornero, Revista de la Sociedad Ornitológica del Plata, Tomo 1, No. 1, October, 1917.
Emu, The, XVII, Part 4, April, 1918.
Fins Feathers and Fur, No. 13, March, 1918.
Ibis, The, (10), VI, No. 2, April, 1918.
New Jersey Audubon Bulletin, Nos. 24 and 25, March and May, 1918.
Oologist, The, XXXV, Nos. 4 and 5 and 6, April-June, 1918.
Ottawa Naturalist, The, XXXI, Nos. 10 and 11, January and February, 1918.
Philippine Journal of Science, The, XII, Sect. D., Nos. 6, XIII, Nos. 1, 2, and 3, November, 1917, January, March and May, 1918. Contents and Index.
Revue Française d'Ornithologie, Nos. 106 and 107, February and March, 1918.
Royal Society for the Protection of Birds, Twenty-seventh Annual Report.
Science, N. S., Nos. 1211-24.
Scottish Naturalist, The, Nos. 74, 75, 76, and 77, February-May, 1918.
Wilson Bulletin, The, XXX, No. 1, March, 1918.
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NOTES AND NEWS.

WE learn from 'The Ibis' of the death, on January 31, 1917, of Prof. Dr. Friedrich Hermann Otto Finsch, an original Honorary Fellow of the American Ornithologists' Union. He was born at Warmbrunn in Silesia on October 8, 1839 and published his first contribution to ornithology in 1859.

In 1861 he obtained a position in the Leyden Museum under Schlegel and in 1864 succeeded Hartlaub as curator of the Museum at Bremen. In collaboration with Hartlaub he published two notable ornithological works, 'The Ornithology of Central Polynesia' and 'Die Vogel Ost-Afrikas.' Resigning his position at Bremen in 1878 he engaged in an extensive tour of the South Seas which covered the years 1879-1882. Besides securing extensive and valuable collections he gained an intimate knowledge of the islands with the result that he returned on another expedition in 1884-1886 as Imperial Commissioner and through his influence

the German Colonies of Kaiser Wilhelm's Land and the Bismark Archipelago were established.

Returning to Leyden as the curator of the Rijk Museum in 1898 he continued his ornithological researches for some years but in 1904 he was appointed curator of the Ethnographic Section of the Museum at Brunswick, Germany, where he remained for the rest of his life, devoting his attention almost entirely to ethnology.

Dr. Finsch was well known in England and published contributions in 'The Ibis' and other British journals as early as 1870. In 1872 he visited California and a few years later travelled in Lapland and in Siberia.

His ornithological work was entirely systematic and consisted besides the volumes already mentioned, of numerous contributions to the 'Journal für Ornithologie,' the 'Ned Tijdschrift Dierkunde,' and other journals. As has been truly said "he was one of the best of the old school of German workers."

HENRY REED TAYLOR, well known as the founder of the 'Nidologist,' died at Agnewo, Calif., Sept. 23, 1917. He was the son of Bishop William Taylor of the Methodist Episcopal Church and Isabella A. (Kimberlin) Taylor, both of whom were born in Virginia. Harry R. Taylor as he was generally known was born at Capetown, South Africa, Oct. 6, 1866, but spent most of his life at Alameda, Calif. He was an enthusiastic oologist and published many articles on nests and eggs of western birds especially Raptores and Hummingbirds. During the period of his ornithological activity, from 1884 to 1906, his field of work was confined to California and included chiefly the counties of Alameda, Monterey, Placer, San Benito and Santa Clara, and the Farallone Islands. His contributions were published chiefly in the 'Young Oologist,' 'Ornithologist and Oologist,' 'Nidologist' and 'Condor.' From 1893 to 1897 he edited the 'Nidologist' which was then the organ of the Cooper Ornithological Club. One of his latest publications, issued in 1904, was his 'Standard American Egg Catalogue,' which included an appendix containing a directory of oologists. Shortly after the great earthquake of 1906 he became a patient in a sanatorium where he passed the last eleven years of his life.

Taylor was one of the founders and vice president of the California Ornithological Club in 1889, and vice president in 1894 and president in 1895 of the Cooper Ornithological Club. Although he never joined the American Ornithologists' Union, he was known to a number of the members, attended the Washington meeting in 1895, and published the first group photograph of the Union (Nidologist, III, p. 41, Dec., 1895). He was active, energetic, always enthusiastic in any matter pertaining to oology, and was one of the most prominent of the little group of California field collectors of the eighties.—T. S. P.

THE PRINCIPAL ORNITHOLOGICAL SOCIETIES.—The following list of societies is given for the convenience of readers who may be interested

in the organizations which have been founded for the advancement of ornithology. The name of each society is followed by the date of organization, the name of its publication, and the address of the secretary or other officer to whom communications should be sent.

As this list is intended only for present addresses, it is unnecessary to mention societies in countries which cannot now be reached by mail. No attempt has been made to include bird protective and similar organizations, but a list of 134 State Audubon Societies and local bird clubs may be found in 'Bird-Lore,' XIX, pp. 381-390, Dec., 1917.—T. S. P.

American Ornithologists' Union. Founded Sept. 26, 1883, incorporated Nov. 14, 1888. *The Auk*.

Secretary T. S. Palmer, 1939 Biltmore St., N. W., Washington, D. C.

Cooper Ornithological Club. Founded June 22, 1893. *The Condor*.

Secretary Northern Division, Mrs. Amelia S. Allen, 37 Mosswood Road, Berkeley, Calif.

Secretary Southern Division, L. E. Wyman, 3927 Wisconsin St., Los Angeles, Calif.

Secretary Intermountain Chapter, Ashby D. Boyle, 351 5th Ave., Salt Lake City, Utah.

Delaware Valley Ornithological Club. Founded Feb. 3, 1890. *Cassinia*.

Secretary J. Fletcher Street, Beverly, N. J.

Nebraska Ornithologists' Union. Founded July 15, 1899. *The Wilson Bulletin*.

Secretary-Treasurer Prof. M. H. Swenk, Lincoln, Nebr.

Nuttall Ornithological Club. Founded 1873. *Memoirs*.

Secretary Campbell Bosson, 30 State Street, Boston, Mass.

Wilson Ornithological Club. Founded Dec. 5, 1888. *The Wilson Bulletin*.

Secretary A. F. Ganier, 1221 17th Ave., South, Nashville, Tenn.

The Avicultural Society. *Avicultural Magazine*.

Hon. Correspondence Secretary, Dr. A. G. Butler, 124 Beckenham Road, Beckenham, Kent, England.

Hon. Business Secretary, Miss R. Alderson, Park House, Worksop, England.

British Ornithologists' Club. Founded Oct. 5, 1892. *Bulletin*.

Editor, D. Seth-Smith, 34 Elsworthy Road, South Hampstead N. W. 3, England.

British Ornithologists' Union. Founded Nov. 17, 1858. *The Ibis*.

Hon. Secretary E. C. Stuart Baker, Zoological Society, Regent's Park, London.

Dansk Ornithologisk Forening. *Tidsskrift*.

Secretary P. Jespersen, Marstandsgrade 25c, Copenhagen, Denmark.

Nederlandsche Ornithologische Vereeniging. *Ardea*.

Secretary Dr. L. F. De Beaufort, Eerbeek, Holland.

Club van Nederlandsche Vogelkundigen. Jaarbericht.

Secretary Baron René C. E. G. J. van Snoukaert von Schauburg, Doorn, Holland.

Royal Australasian Ornithologists' Union. Founded Nov. 7, 1900. The Emu.

Hon. Secretary W. H. D. Le Souëf, Zoological Gardens, Melbourne, Victoria, Australia.

Sociedad Ornitológica del Plata. Founded 1917. El Hornero.

President, Dr. Roberto Dabbene, Museo Nacional Historia Natural, Buenos Aires, Argentina.

South African Biological Society. Founded 1916.

Secretary Chas. K. Brain, Box 513, Pretoria, Transvaal, South Africa.

South Australian Ornithological Association. Founded 1899. South Australian Ornithologist.

Acting Secretary F. M. Angel, 113 Grenfell St., Adelaide, South Australia.

THE Royal Australian Ornithologists' Union is to be congratulated upon the generous gift of \$5,000 received from one of its members, H. L. White, Esq. Mr. White is well known for his generosity and his splendid ornithological collection has only recently been given to the Australian National Museum where he thought it would be of more use in advancing a knowledge of Australian ornithology.

Science certainly owes a debt of gratitude to such benefactors. After all it is the ornithologists of the various countries who were originally responsible for the development of the popular interest in birds which has resulted in the Audubon Societies and kindred organizations, which are doing such splendid work today. The patrons of this movement however should keep Mr. White's example in mind and not forget the needs of the parent organizations, like the American Ornithologists' Union, whose activities in the lines of research and publication could be vastly increased by adequate endowment.

WE are glad to welcome a new arrival in the field of ornithological journalism in 'El Hornero' the Proceedings of the Ornithological Society of La Plata, with headquarters at Buenos Aires. The first number which appeared in October, 1917, deserves the highest commendation and we wish the publication every success. The cover following the example of most other ornithological journals bears a vignette of the bird after which the publication is named—a pair of 'Horneros' (*Furnarius rufus*) and their wonderful mud nest.

THE MEMBERS OF THE A. O. U.—In 1901, under an amendment to the By-Laws, provision was made for a class of Members intermediate between Fellows and Associates. The number was limited to 75, nominations were

made by the Council to the Union, and the affirmative votes of three-fourths of the Fellows present were necessary for election. The establishment of this class was the result of several proposals to increase the number of Active Members (now known as Fellows) and to provide some form of recognition of the more active workers among the Associates. Fifty-three Members were at once elected and thirteen more in the following year.

Although the list was never filled the limit was increased to 100 in 1906 and at the San Francisco meeting, in 1915, Members were given the right to vote for the election of officers, Members, and Associates. As a result the business sessions have since been well attended. The list has now reached 80 the largest number since the class was created. In addition 16 others have been promoted to the class of Fellows, 13 have dropped out, and 11 are deceased, making a total of 120 persons who have thus far qualified as Members. Not more than five can now be elected at any one meeting and this limitation with losses through promotions, resignations, and deaths, makes the increase rather slow. Even if the maximum number are elected at each meeting the present limit is not likely to be reached for several years.—T. S. P.

CALLED TO THE COLORS.—Since the publication in the April number of 'The Auk' of the second list of A. O. U. members in military service, several new names and a few changes have been reported. The additions are as follows:

ANDERSON, ERNEST M., Esquimalt, B. C.

BRADLEE, THOMAS STEVENSON, Boston, Mass. Major Quartermaster Corps, Personnel and Transportation Division, Governor's Island, N. Y.

CROSBY, MAUNSELL SHIEFFELIN, Rhinebeck, N. Y. Captain Quartermaster's Corps, National Guard, Camp Mills, Hempstead, N. Y.

HALL, F. GREGORY, Milton, Wis. In photographic work in the Army.

LEISTER, CLAUDE WILLARD, Ithaca, N. Y. Private 103d Signal Corps, Camp Hancock, Augusta, Ga.

LINCOLN, FREDERICK CHARLES, Denver Colo.

MAYFIELD, DR. GEORGE R., Nashville, Tenn. Am. Expeditionary Forces, in France.

McMAHON, WALT. F., New York, N. Y.

METCALF, FRANKLIN POST, Washington, D. C. Private Co. C, 303d Signal Battalion, Camp Dix, Wrightstown, N. J.

MITCHELL, DR. WALTON IUNGERICH, Wichita, Kans. Captain Med. Corps, Camp Funston, Kans.

NOBLE, GLADWYN KINGSLEY, Cambridge, Mass. Seaman U. S. Naval Station, Hingham, Mass.

PALMER, R. H., Pocatello, Idaho.

PANGBURN, CLIFFORD HAYES, New Haven, Conn. Acting Lieut. Red Cross in France, now in the United States.

ROGERS, CHARLES HENRY, New York, N. Y. 9th Recruit Co., Camp Hancock, Augusta, Ga.
STODDARD, HERBERT LEE, Chicago, Ill.
TYLER, DR. WINSOR M., Lexington, Mass. Captain Medical Reserve Corps, Ft. Adams, Newport, R. I.
WOOD, DR. CASEY ALBERT, Chicago, Ill. Major, Office Surgeon General, Washington, D. C.
WRIGHT, HORACE WINSLOW, Boston, Mass. In the Navy.

The following changes should also be noted. Captain C. Wm. Beebe, and Lieutenants James P. Chapin and James L. Peters are now in France; Lieut. Ludlow Griscom is on duty in the Military Intelligence Office in the War Department, Washington, D. C.; and Francis Harper and Ernest G. Holt have been commissioned Lieutenants. Thos. D. Burleigh is now in the 20th Engineers (Forest), and Colin C. Sanborn, 149th Artillery, is now in France. In the Navy Ensign W. Sprague Brooks, recently stationed at Newport, R. I., has been discharged on account of physical disability, and Private Douglas C. Mabbott, in the Marine Corps, is now in France.

Relatives or friends who may have additional information concerning these or other members are requested to communicate with the Secretary giving any facts as to rank, branch of the service or present location of members in military service in order that necessary corrections in the list may be made from time to time.

T. S. Palmer,
Secretary.

1939 Biltmore St., N. W.
Washington, D. C.

FELLOWS and Members are reminded that a provision of the By Laws requires that nominations to the classes of Fellows and Members shall be made in writing, signed by three Fellows or Members, and delivered to the Secretary at least three months prior to the Stated Meeting. At present there are no vacancies in the class of Fellows. Nominations for Members should be in the hands of the Secretary not later than August 15. Nomination blanks may be had upon application.

THE thirty-sixth stated meeting of the American Ornithologists' Union will be held at the American Museum of Natural History, New York City, November 12-14, 1918, with a business session of the Fellows and Members on the evening of the 11th. All members of the Society should keep the date in mind and prepare to be present if possible.